

Farm Time Savers

How to build labor saving devices. How to add
life to farm machinery *and* helpful home hints





Reg. U. S. Pat. Off.

For Your Reference

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FIRE DEPT.

SHERIFF

COUNTY FARM AGENT

SINCLAIR AGENT

Farm Time Savers

HOW TO BUILD LABOR SAVING
DEVICES.....HOW TO ADD LIFE
TO FARM MACHINERY...HELPFUL
HOME HINTS AND INFORMATION

*T*HIS book is presented to you with the compliments of your Sinclair Agent in the hope that it will be of service as a handy reference work. The construction hints contained herein are practical and the lubrication information is intended to help you obtain longer service at economical cost from your farm equipment.

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U. S. A.

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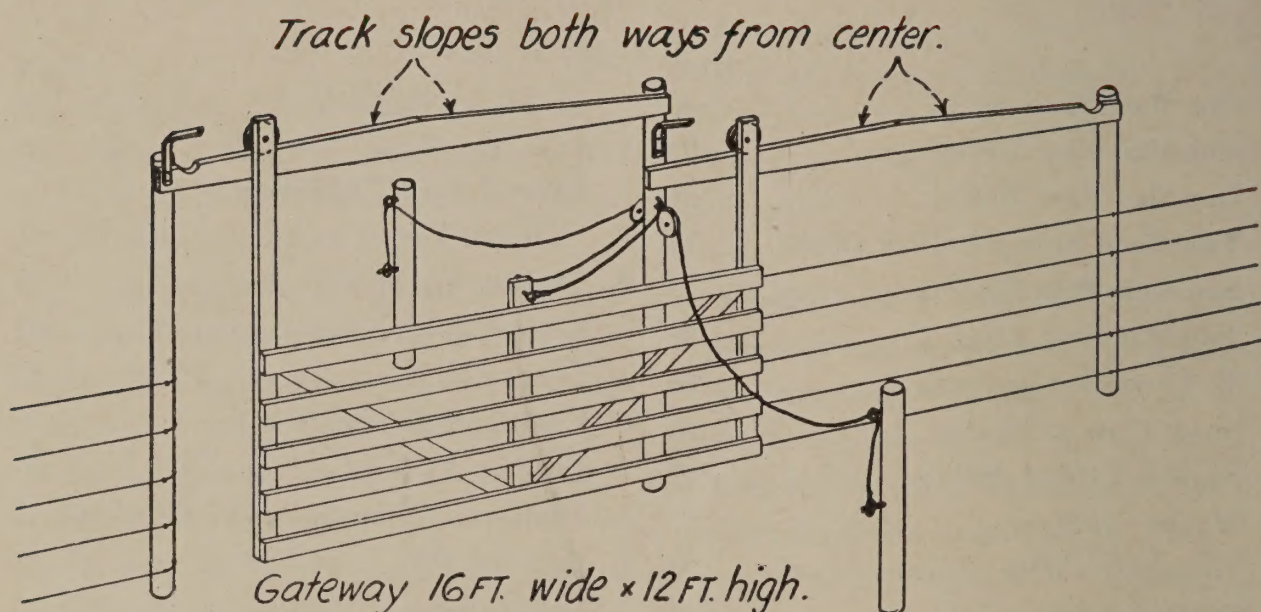
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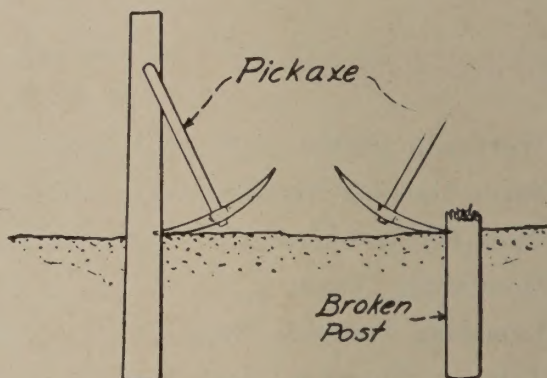
FENCE AND GATE IDEAS



A Gate You Can Open and Close from Your Car

THE gate shown above is easily made and will give pretty good satisfaction except that snow will interfere with its operation. The L-shaped catch over the rollers when the gate is closed is to prevent hogs from lifting up the gate. A roller may be put under the track for the same purpose.

and used to strengthen a bent or weakened metal post.



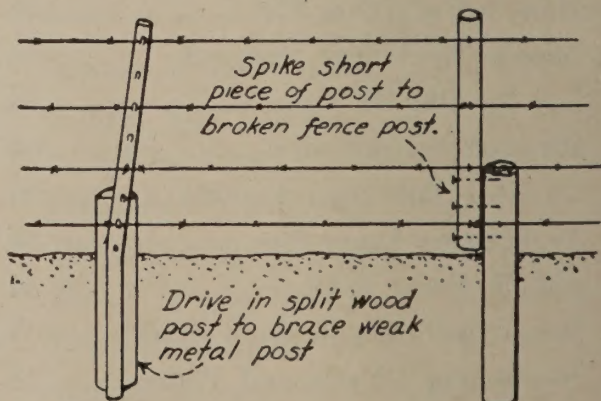
To Pull Fence Posts

Using a block under the pickaxe will increase the leverage if the post is stubborn.

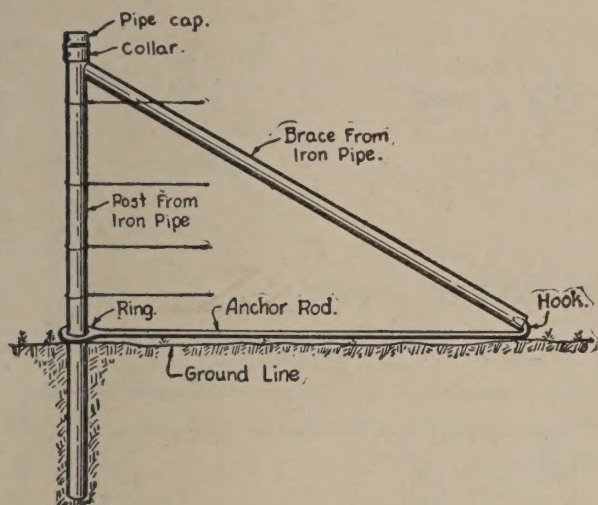
Fence Repair Hints

FIRST shows the use of a pickaxe for pulling an old post. This is especially convenient where the post has broken off at or just below the surface of the ground.

The second shows the use of half a broken post spiked to another broken post to make a temporary repair. Use six-inch spikes for nailing the two together. Also is shown the use of a broken post split in half



Self-bracing Corner Post



YOU can make an almost permanent end post and brace with a few pieces of heavy pipe.

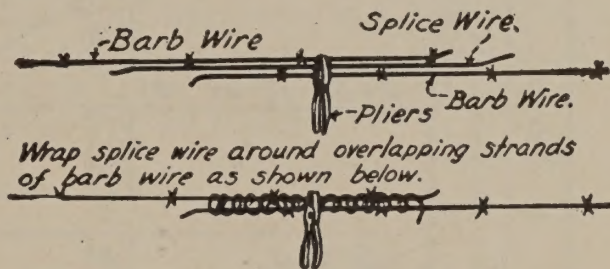
The post and brace are made of two pieces of heavy pipe, preferably not less than two inches. The post should be of standard end post length of about eight and one-half or nine feet and should be threaded at the top. The brace may be of any length desired, the remainder of a 20-foot pipe length being about right. One end should be hollowed to fit the post at an angle. The anchor rod should be quite heavy, preferably not less than seven-eighths inch, with a ring forged at one end to slip over the post easily, and a short-turned hook at the other. The proper length will depend on length and angle of brace.

To assemble, dig a hole of the proper depth and set the post, drop the anchor rod over it with the hook up, hook the lower end of brace over hook, fit it against the post, drop a collar over the post to serve as a shoulder, and screw on the pipe cap.

If the fence becomes slack by freezing, heat, or from age, it can be tightened by prying up the hook end of anchor rod and slipping more material under it.

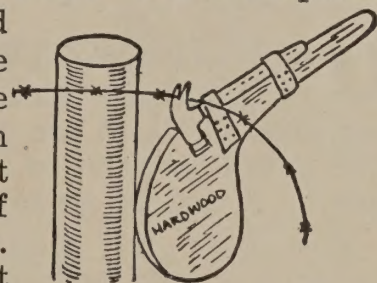
To Splice Barb Wire

THE method of splicing a broken barbed wire is by pulling the ends slightly past each other and then twisting a piece of smooth wire tightly around each of them in turn while they are held with the pliers. If a piece of the barbed wire is gone, a piece can be spliced in as shown with two splices.



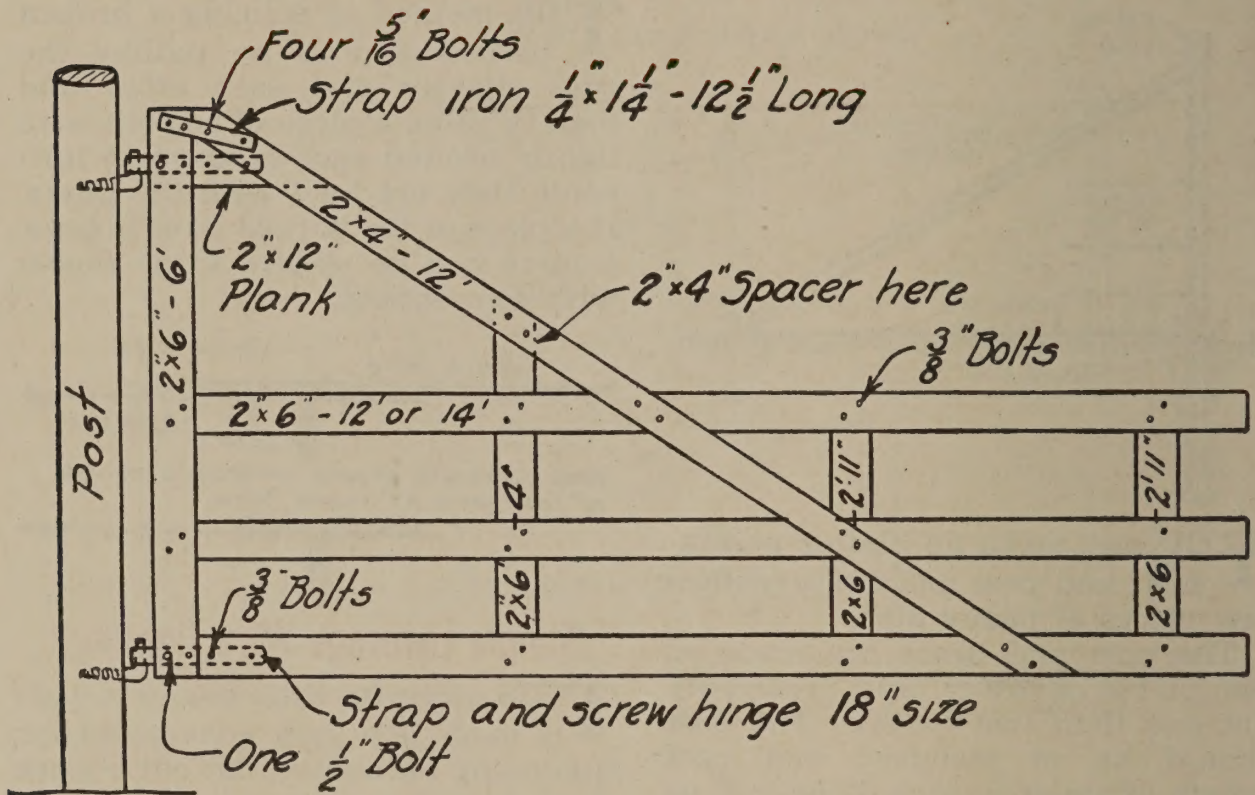
Simple Leverage Wire Tightener

THIS powerful little device is easily made and very convenient for tightening barbwire. Cut out a piece of inch board of the shape shown in the drawing, with a notch to let in the face of the hammer. To prevent the piece of wood in front of the hammer from splitting off, a gimlet hole can be bored and a spike or thin bolt inserted. Fasten on the hammer with leather straps. Small brads are driven in the edge of the piece of board where it will contact the post and left sticking out enough to make a good hold of it. The handle is made smooth so that it will not hurt the hands when in use.



WHEN greasing bearings on any farm machine be sure to screw down grease cup caps until grease oozes out of bearing.

Sagless Farm Gate



ONE of the annoying things every farmer meets is to have his gate sag after being in use a few months. The gate illustrated is as nearly sagless as it can be made.

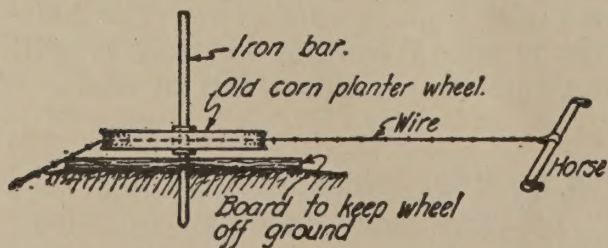
The post for supporting these properly should be large and of lasting material, set deep and well anchored against the pull of the gate

unless a tight fence pulls in the opposite direction.

In making, plane up all rough spots, cut the parts to the proper shape and bore the holes. Then paint all parts separately, working some paint into the holes. When dry enough to handle, put the parts together, and paint again.

Pulling Wire Around Corner

STRETCHING barb or other wire around a corner is a simple prop-

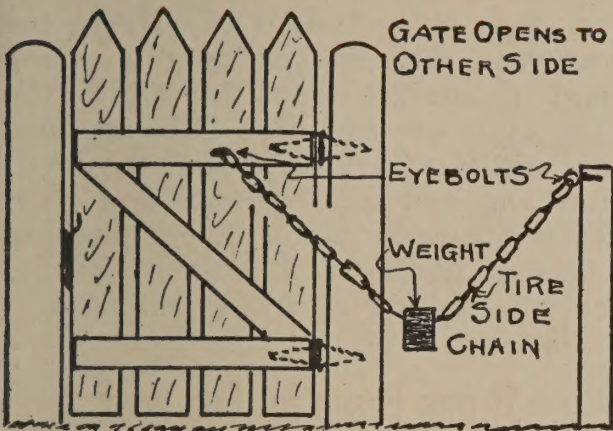


osition with this rig. It requires nothing but an old corn planter, a

stout iron bar to drive down through the wheel, and a large board with a hole through it to put under the wheel to keep it from working down into the ground. The top of the bar can be tied to a convenient tree or post, or it can be braced by a couple of boards set against small stakes.

TO CLEAN dirt, grease, rust or tarnish from metal surfaces use Sinclair Metal Polish.

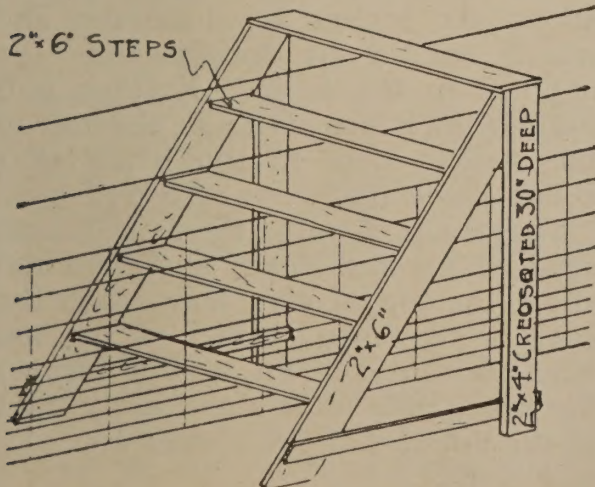
Self-Closing Yard Gate



THAT yard or poultry pen gate that someone always leaves open can be made to close itself in this easy way. Remove the cross-links of an old tire chain and fasten the side chains together to make a length of six or seven feet. Fasten one end with an eye-bolt to the middle of the gate and the other to a small post as shown, with a weight fastened about the middle of the chain. The gate always close itself.

Stile Over Fence

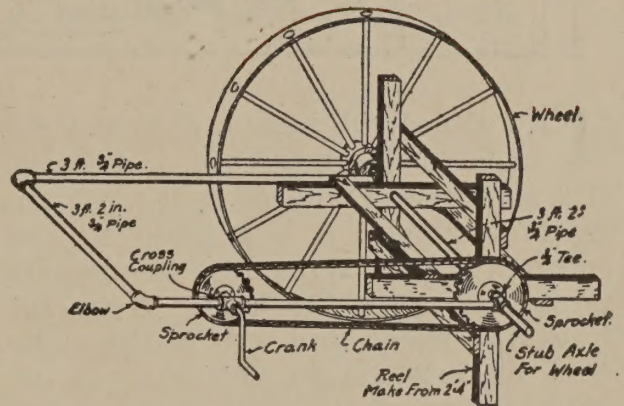
YOU cross the fence on this handy stile by walking up one side and down the other without damage to fence or clothing. The creosoted posts should set two and one-half feet in the ground, and the 2x6 side



pieces and steps creosoted after cutting. If preferred, the side pieces may be commercial creosoted half posts and the steps the same sawed in two, or the side pieces and steps of about three-inch poles spiked together. Add a handrail if desired.

A cheaper stile which sheep or goats cannot cross can be made by setting two poles 30 inches deep and the same distance apart directly in line with the fence and then spiking or bolting pieces on each side for steps. One needs his hands free for this type of crossing.

Winding Barb Wire

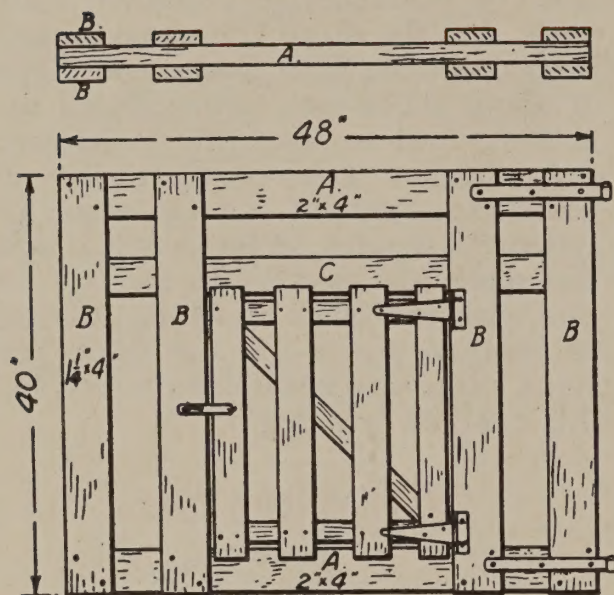


THIS simple device for rolling up and unrolling barb wire can be easily built from scrap material.

First make a square of three-fourth-inch pipe with ells at two corners and tees at the other two corners. Two stubs of an old buggy axle are threaded to fit into the outer side of the tees for the wheels. Make a roll from 2x4's three feet long for the wire to roll on with a sprocket wheel at one end. Also a sprocket about six inches from the end at the right hand side.

This is fastened to a crank running through a cross coupling, while a chain extends from this sprocket to the sprocket on the wire roll. Sprocket wheels and chain may be taken from an old binder or bicycle.

Three-in-one Service Gate



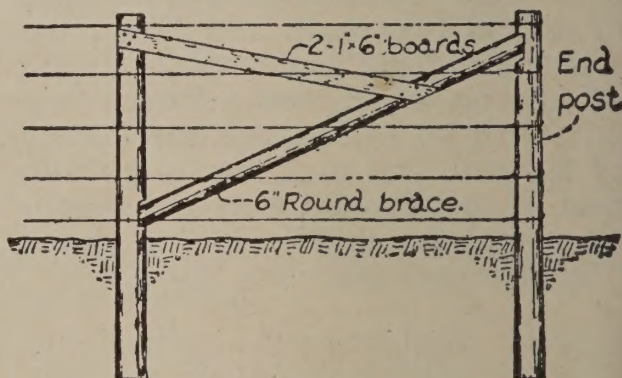
TRY this combination gate at your barn for loading hogs and cattle. It is a time and trouble saver. When used as shown, it is a plain slat or summer gate. When the small gate is opened, it makes a fine creep for hogs and sheep and will at the same time exclude larger animals. If the opening for the small gate is the same width as the loading chute, it makes an ideal arrangement for loading hogs and sheep. As the gate is permanent the stock is accustomed to it and show no hesitancy when the loading chute is in place.

The bar marked (C) is a sliding bar and is removed when loading stock, in order to make plenty of overhead room. This same bar prevents calves and other animals of similar size from passing back and forth when in place. As the small gate swings inward, it is very convenient to close in case a stubborn animal undertakes to back down out of the chute after once entering it. The entire gate is hinged to the door frame and swings inward, thus permitting stock of all kinds to pass.

The pieces marked (A) are made of 2x4's. There are two pieces—one on each side—shown as (B) in the drawing. This makes the gate strong and makes the track for slide (C). The slats on the small gate are also cut sufficiently long so that they will butt against pieces (A) and (C). This prevents stock from pushing the gate through. The entire gate is bolted, making it strong and rigid.

Strong Brace for End Post

A good fence brace is shown in the accompanying diagram. First set two 8 or 10-inch posts 12



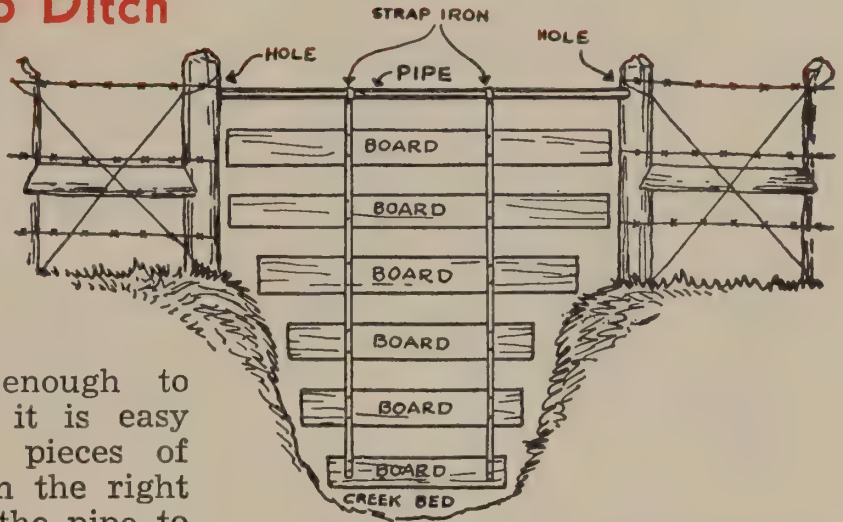
feet apart and three feet in the ground. Then cut notches in posts, one at top of end post and the other near the ground on second post, to receive the ends of the brace which should be a stiff and long-lived pole about six inches in diameter and which should fit snugly into the notches in the posts. Nail or bolt two six-inch boards from the top of the second post to the brace pole about three feet from the end post.

This method holds the second post straight up and down and does not allow the top to give way when the wire is stretched. Start at the top wire and build down, as this insures the brace pole to be thoroughly tight in the notches of the corner and second posts.

Fencing a Deep Ditch

WHEN you put up a new fence across a ditch, put two posts firmly in the ground on each side of the creek. Bore holes in the posts before putting them in the ground. Put a pipe in these holes long enough to cross the creek. Then it is easy to take strap iron or pieces of narrow board, saw them the right length from the top of the pipe to the bottom of ditch or creek, nail or bolt cross boards to these and saw off right length so they will fit the creek banks on both sides. Then hang this gate over the pipe by either putting leather straps across the boards and pipe or simply bend the strap iron over the pipe. Be sure to take heavy enough pipe so it will not bend or break.

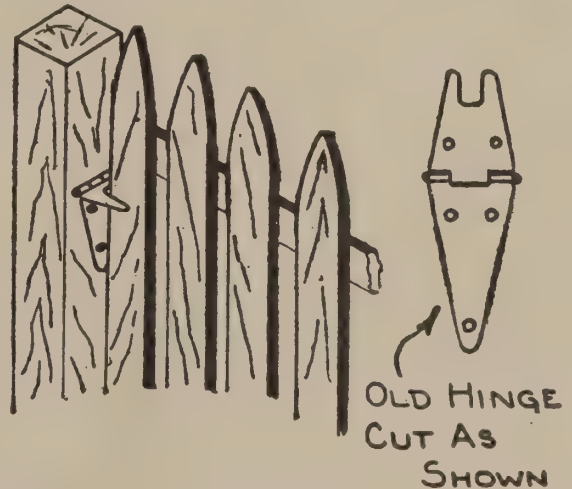
This will keep the animals from going under the netting and getting out of the pasture.



to pass out at the outer side. It is impossible for horses or cattle to get through.

Old Hinge Makes a Gate Latch

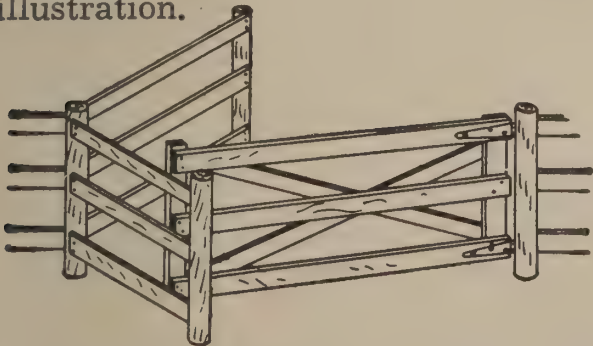
THE diagram shows how to make a very convenient gate latch out of an old strap hinge. Cut out one half as shown so it will fit loosely over the first picket on the gate. The post should be notched slightly so the hinge pin will fit into the recess and the hinge can then be screwed flat to the post. A block can be



clamped to a round metal post and the latch screwed to the block. It can also be used with a metal gate by bolting on a piece for the latch to fit over.

Gate Always Closed

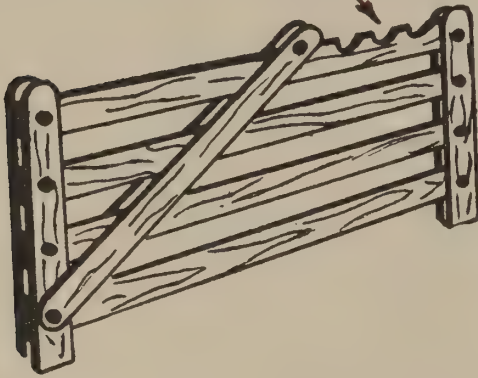
OFTEN on the farm there is need of a gate that cannot be left open. This can easily be provided for by making one as shown in the illustration.



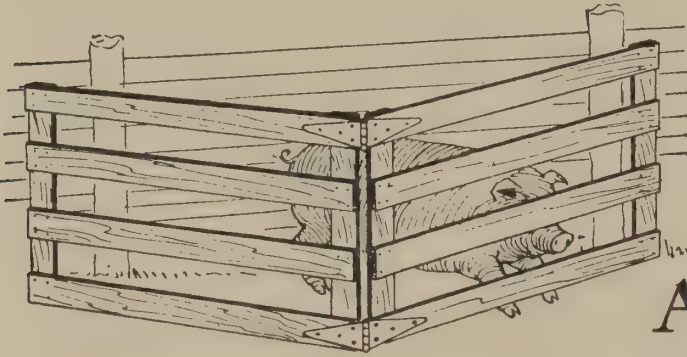
A person passing through this gate swings it to one side, steps into the V-shaped bay and pulls the gate back so that there is room for him

Adjustable Swinging Gate

CUT TOP BOARD AS SHOWN



THE sketch shows a very convenient swinging gate which can be adjusted in height at the latch end to clear ice or snow, to let pigs or chickens through. The brace boards slide back into the notches and hold when the latch end is lifted up, to give any desired height.



Handy Extra Fence Corner

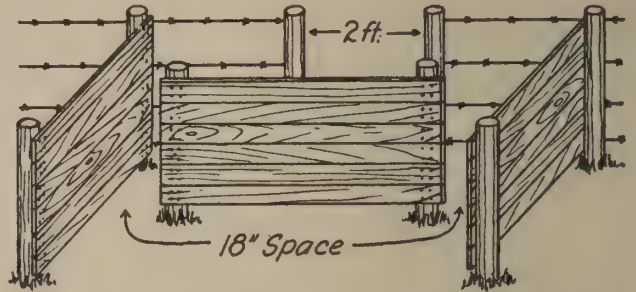
A HANDY device for catching a hog in the lot is made by hinging together two gates made of light material as shown in the illustration. The hog can be caught at any place along the fence.



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lowed 100 million
years.

Pass Gap in Fence

IF children or others have frequent occasion to go through a fence and find a gate hard to handle or are careless in closing it, try this pass gap idea.



Cut a gap in the fence about two feet long, then 18 inches from this on the pasture side build a fence panel about eight feet long so it is lapped by the gap about three feet at each end. A short panel across the end of the 18-inch passage as shown turns cattle but allows a person to go through.

Making a Post Hole Digger Work Easier

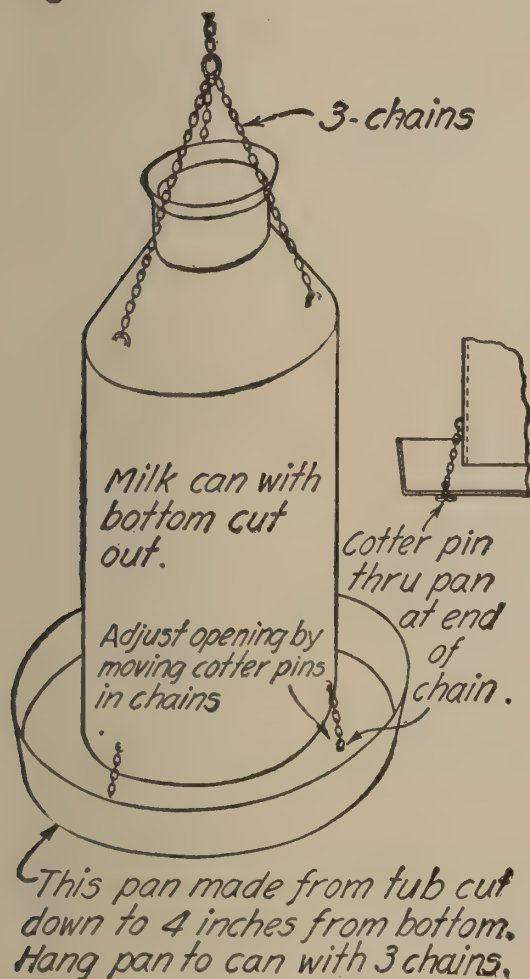
A CAR steering wheel placed on the common post hole digger will greatly improve it, especially when it is necessary to make a post hole near another post, as the ordinary type of handle has a tendency to get caught and often results in the injury of the operator's hands. The drawing is quite self explanatory. If the hole in the steering wheel is too big a bushing will remedy this.



FOR YOUR LIVESTOCK

Non-clogging Poultry Feeder

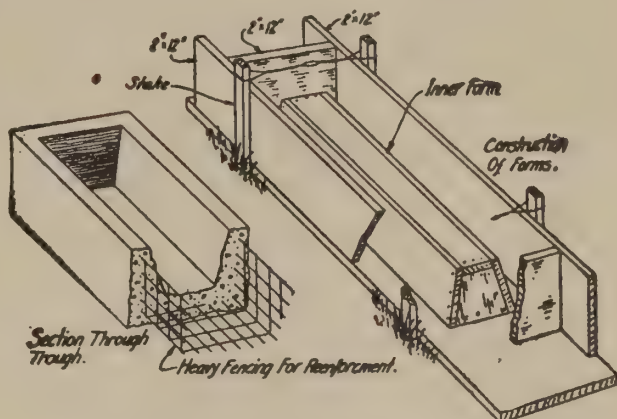
CUT the bottom out of an old milk can and hang a shallow tub as shown below. Regulate the rate of feeding by changing position of the cotter pins below the bottom of the pan. Hens will not roost on it as their weight will make it tip and swing.



Concrete Hog Trough

IT IS a comparatively simple matter to make a concrete hog trough, using the method shown in the diagram. A good size is about 18 inches wide outside, 12 inches high, and 6 or more feet long, depending on the number of hogs to use it. Two or more short troughs are usually better than one long one. The method

of construction is shown fairly well in the diagram, the troughs being made upside down on a smooth plat-



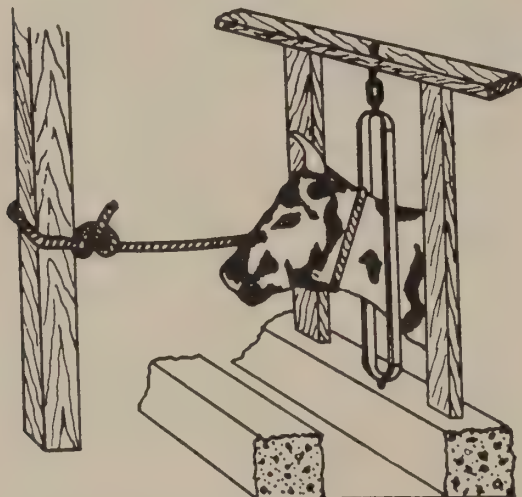
form or on carefully leveled earth.

Use a mixture of one part concrete, two parts sand, and three parts coarse pebbles or broken stone, with just enough water to make a jelly-like or quaky mixture. The inside form can be made of inch lumber and should be so the tank edge will have a thickness of about two and one-half inches at the top, and the inside slope of about two and one-half inches so the sides should be about two and one-half inches at the top and about five inches at the bottom, the ends having the same thickness and slope as the sides. The bottom of the tank should be about three inches thick. Be sure to use reinforcing to prevent cracking, especially around ends and corners.

L EANING out the carburetor mixture in an attempt to improve fuel economy may cause increased fuel consumption, power loss, and overheating. Too lean mixtures produce an oxidizing flame that often causes valve trouble. A white coating on the inside of your exhaust pipe may be an indication that the mixture is too lean.

Keeps Cows from Kicking

THE diagram shows a method of tying cows to prevent their kicking. Many dairymen punish cows that have a habit of kicking by tying their legs together with chains.



A much better way is to tie a rope around her neck and draw it snug into the stanchion. So tied, the cow is not able to kick, because to kick she must move forward. She is already as far forward as she can go. Do not tie so closely that she cannot get air. Do this a few times and she will stand without kicking.

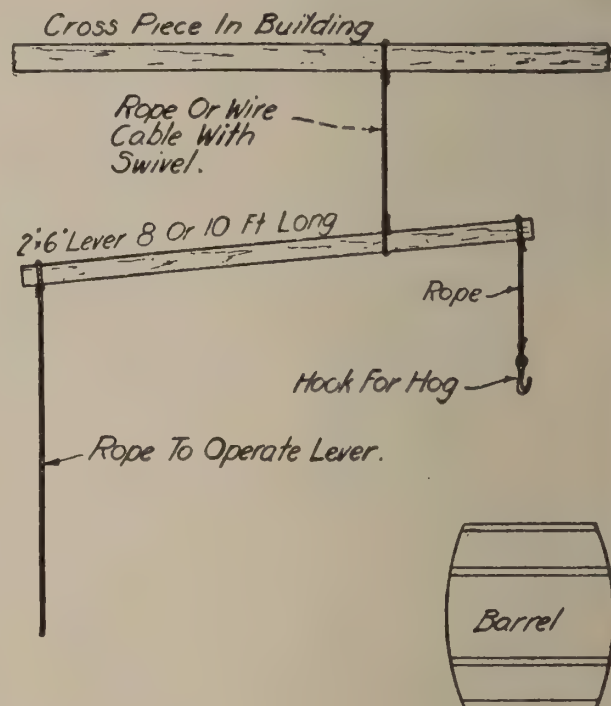
Handy Butchering Device

AN important factor in easy home butchering is a simple hoist for raising and lowering the hog in scalding and for hanging it up ready to be dressed. To be satisfactory, such a hoist should be easily put up and taken down, should be adjustable for height, should raise and lower the hog quickly, and above all should be safe against accident.

The diagram shows a simple hoist which meets these requirements. If a log chain is used, it can be wrapped twice around the lever and hooked up as high or as low as desired, and then can be slipped along the

lever so as to adjust the weight of hog to that of the operator.

If the barrel is set partly in the ground, it will make scalding much



easier. The diagram shows a 2x6 about 10 feet, but this would hardly be safe with a very heavy hog if the lever happened to turn sideways. A solid six-inch pole can be substituted. This hoist also allows of considerable turning movement, which is helpful in handling the hog.

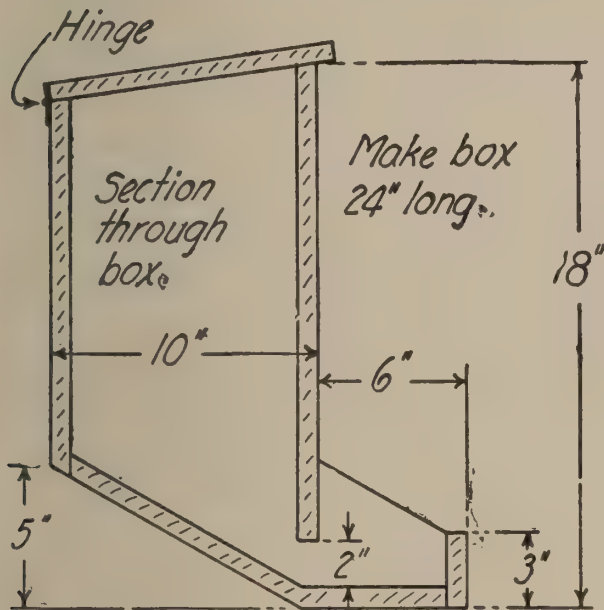
If a building beam is not convenient, a heavy pole may be put across from the fork of a tree to a support made by chaining two 12 or 15-foot poles together near the top and spreading the bottom scissors-like.

CONSULT your nearby Sinclair Agent when you want dependable information on lubrication or fuel oils. He won't charge you for helpful advice and he may have suggestions that will be very valuable to you.

Handy Salt Box for Stock

THIS handy box for salting cattle and other livestock keeps the salt clean at all times and eliminates waste. It holds about 50 pounds of salt. If the salt cakes or gets hard so it won't self-feed, punch it down from the top with a stick.

Nail it to posts in the pasture or on the side of the barn or shed.

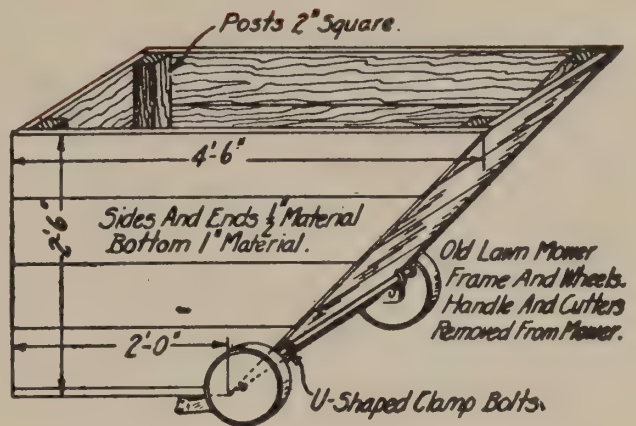


The dimensions for the different parts of the box are shown in the diagram. It can be made of any old lengths of lumber handy, such as old dry goods boxes, and so on. It will be well to set a post with braces at each corner to prevent the stock from jamming against it.

Handy Feed Cart

IF YOU have an old lawn mower frame with wheels, you can easily make it into a convenient feed cart or rubbish carrier. The length is about two feet at the bottom and about four and one-half feet at the top, with a depth of about two and one-half feet.

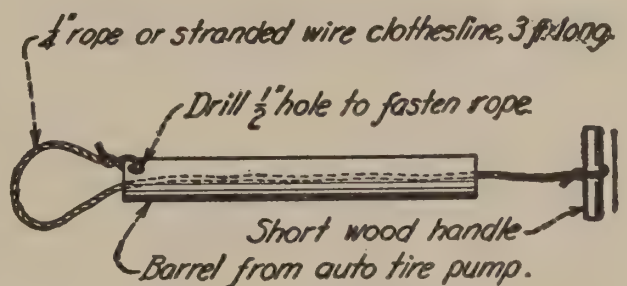
Make the width so that it fits nice-



ly within the wheels and should be from 15 to 18 inches wide. Use about inch material for the bottom and one-half or three-fourths inch for sides. Mount the box so that the wheels extend backwards rather than under the bottom which will make it balance much better.

Hog Catcher from Old Tire Pump

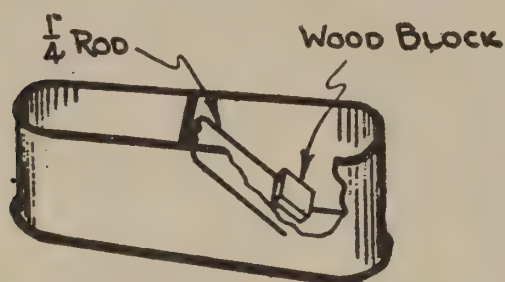
THE tube of an old tire pump makes a good quick-action hog catcher. The sketch shows details.



If you do not have a tube or barrel from a pump, you can take an old fork handle about two feet long, drilling a small hole through it about one-half inch from the sawed-off end. Into this end put a thin bolt with an eye on one end. Fasten one end of the wire to the nut end of the bolt, threading the other end back through the eye. Use a cross-piece or a big harness ring for a pulling handle.

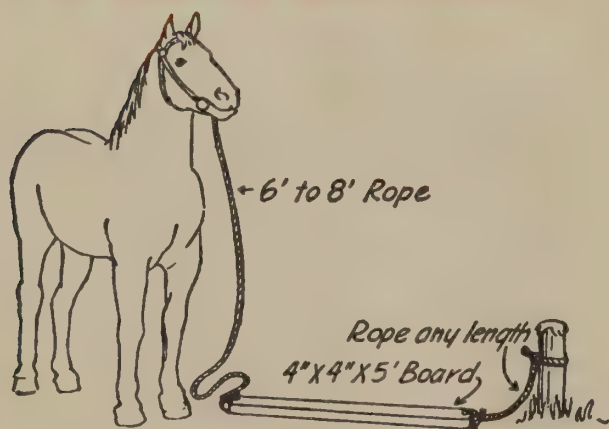
Tell-Tale Tank Float

IT IS very convenient to be able to tell the water level in a large supply tank, especially where it is up in the barn mow. The diagram shows how to arrange a simple marker worked by a float in the tank. The float is a light 2x4, about eight inches long, coated with hot tar and fastened to a one-fourth-inch iron rod, bent into a U-shape and hinged to the cross brace on the tank so that one arm moves up and down on the outside of the tank.



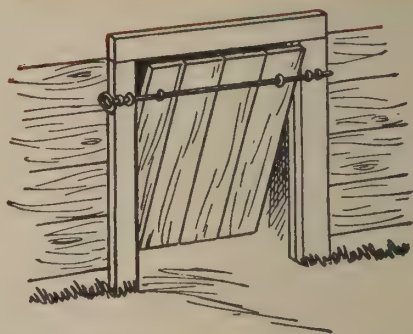
This is a very simple arrangement and is not likely to give trouble. An arc can be painted on the tank and marked in any desired units.

A Good Tie Rope Protector



DID you ever stake out an animal and have it get all snarled up in the picket rope? The arrangement shown effectually prevents this. A heavy jockey-stick or light pole can be used in place of the board if desired.

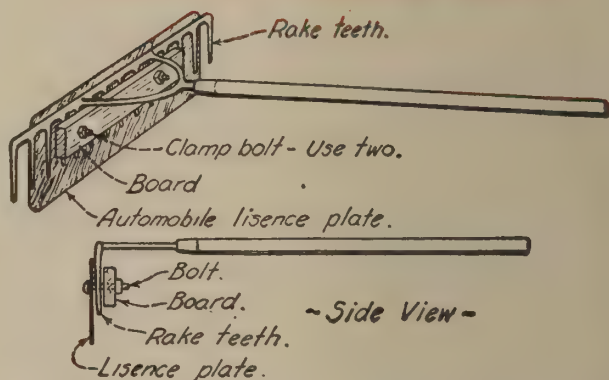
Swinging Hoghouse Door



IT MAY take a few days to get your hogs into the habit of opening this door, but after a little practice they won't mind it at all. It does help from keeping drafts and weather out of the house and requires only a few minutes to make.

A strong wagon rod nailed or stapled to the door on the frame, as shown on the sketch, is all that is necessary.

Cleaner for Droppings Boards



MOST poultry authorities now recommend the use of droppings boards under poultry house roosts, partly for convenience in cleaning and partly because of less danger of infectious diseases spreading where the droppings are kept off the floor.

A handy cleaner is easily made from a garden or lawn rake, discarded automobile license plate, a board, and a couple of clamps, as shown in the sketch.

WATER SUPPLY IDEAS

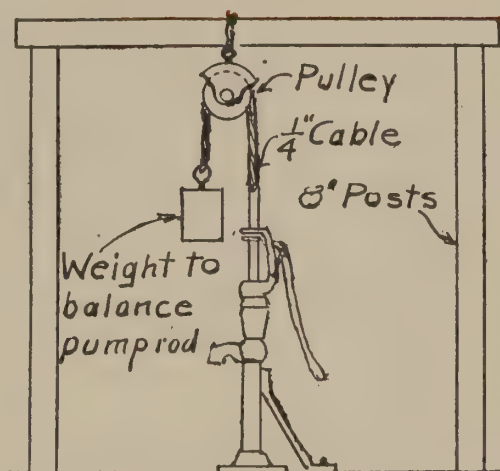
Windmill for Two Wells

IF YOUR wells are comparatively shallow, with the water within 15 or 20 feet of the surface and a suction rather than a lift pump is used, with the pump cylinder near the ground, it will be possible to put a two-way valve between the cylinder and your present suction pipe to the near well, connect another suction pipe from this underground to the other well and then down into the water of the second well. By the use of the two-way valve, you can shut off the suction to the near well and pump from the far one and vice versa. But this cannot be worked if the water in either well is more than 25 or 26 feet from the surface.

If this arrangement cannot be worked, you can put a pump in the second well and pump it from your windmill by using a quadrant arrangement of levers and light wire cables, as shown in the diagram. Diagram (A) is the arrangement where power is transmitted from a gas engine; diagram (B) shows the crossed cable method used with windmill, so that the upward pull

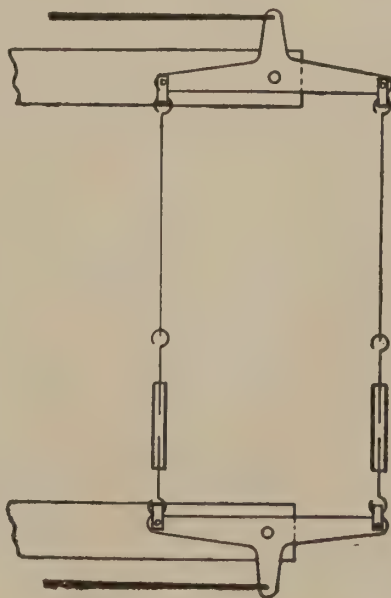
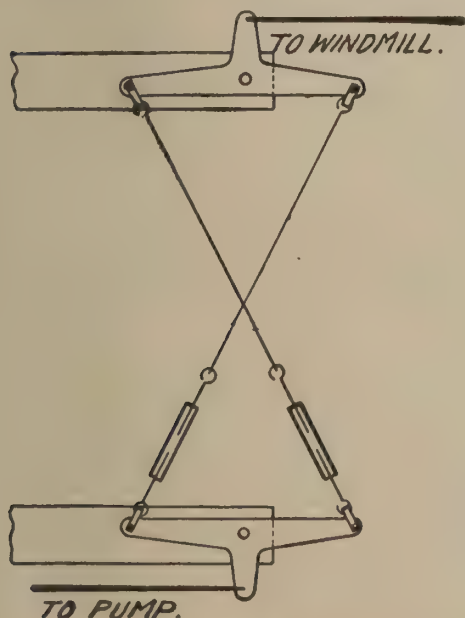
of the pump will come on the upward stroke of the pump rod and thus prevent the pump rod from buckling.

Easier Pump Operation



IN A deep well, the plunger and long pump rod may weigh a good many pounds. To avoid lifting this dead weight every stroke and letting it drop back with a jerk, many owners balance it with a rope run up over a pulley, as shown in the diagram. This permits the use of a smaller motor and saves much wear and tear on the pump.

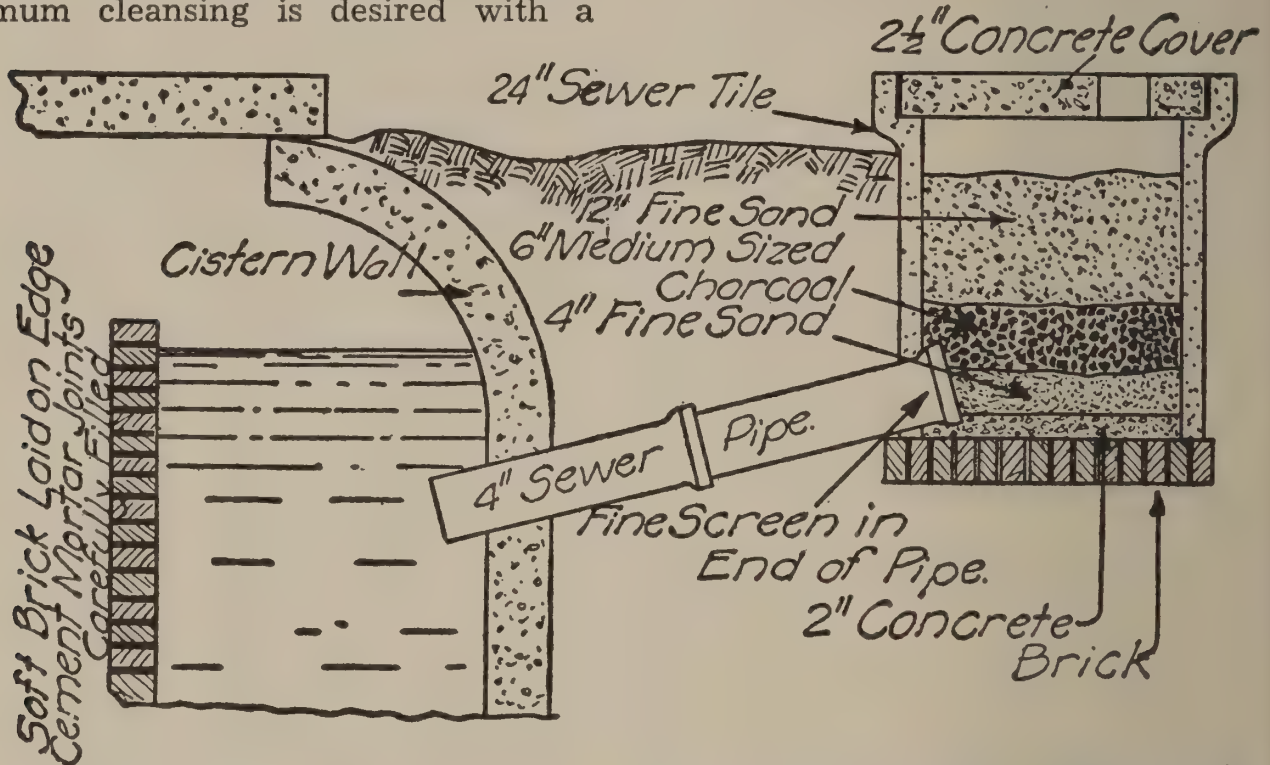
A similar result can be secured by using heavy coil springs which are compressed on the down stroke and help to lift the plunger on the up stroke. The pulley should have ball bearings, and the weight should just about balance that of the plunger and rod.



Outside Cistern Filter

CLEAN medium fine sand makes about the most dependable outside cistern filter where the maximum cleansing is desired with a

ment. The brick wall filter built as a closed box or bell around the foot of the pump pipe is not advisable, as this does not allow the cleaning out



comparatively rapid flow of water. Centrifugal or other types of mechanical filters are often used on the downspout just ahead of the sand filter, but these remove only the coarsest and heaviest impurities. Rocks or coarse gravel should not be used except at the very top of the sand bed to keep leaves and trash from packing down and clogging the flow. There should be at least 18 inches of sand for good results.

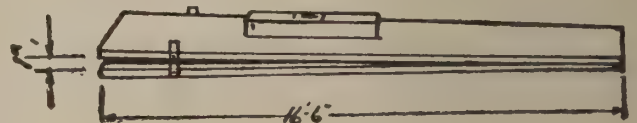
A layer of about six inches of coarse granular charcoal is helpful in eliminating odors and tastes by absorption, but requires frequent renewal or else washing or exposing to sunlight or heat. Removal of colors and fine materials in solution can best be effected by allowing slow filtration through a wall across the cistern of soft brick laid in mortar ce-

of any slime which might work through the filter.

Grade for Tile Drain

THE efficiency of a tile drain is dependent to a large extent on the uniformity of the slope on which the tiles are laid.

An implement of simplicity and



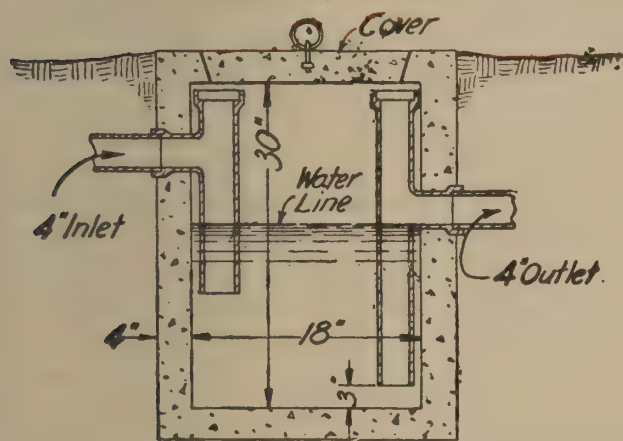
usefulness, the cost of which is negligible, can be made that will serve to eliminate many of the difficulties of ditch digging for tiles. Two pieces of good stiff lumber, each 16½ feet long, are hinged together closely at one end. Attach a strong slat to

each side of the bottom board about a foot from the opposite end.

When a grade of one inch to a rod is desired, open this end of the contrivance one inch and drive nails through the slats to hold it in place. Lay this in the bottom of the ditch, open end downhill, and on top, the spirit level. When the level shows a horizontal position for the top board the bottom will just slope one inch to a rod.

Any grade may be obtained by merely varying the opening of the board.

Grease Trap for Sink



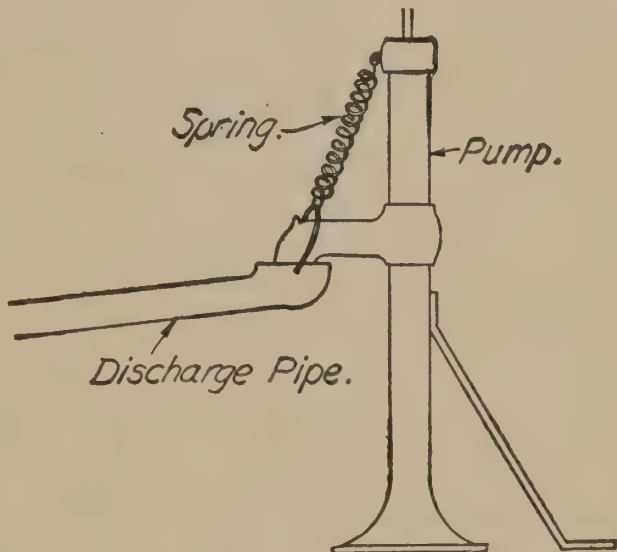
A GREASE trap should always be used in the drain from a kitchen sink either where the drain leads into a septic tank or into a tile of considerable depth, as the accumulated grease not only interferes with the proper operation of a septic tank, but even in a long tile has a tendency to harden and eventually clog the tile.

A grease trap is simply a box of some sort which allows the sink refuse to settle and the grease to rise to the top and harden. The incoming liquid is admitted near the top just under the coating of grease, and the outflow is through an elbow or tee which draws the liquid from near the bottom of the trap, as shown in the drawing.

The grease trap is usually made of concrete or a large sewer tile, but can be made of almost anything that is tight enough to hold liquid. It should be placed near the foundation wall and with the top about level with the surface of the ground. The top should be tight, but removable so the grease can be lifted out occasionally.

Spring for Discharge Pipe

IT WILL take you about 10 minutes to rig up this convenient device for holding up discharge pipe for



a pump. Take a heavy screen door spring and attach to top of pump standard as shown. Pressure of the hand on the pipe will move it into position or out as desired.

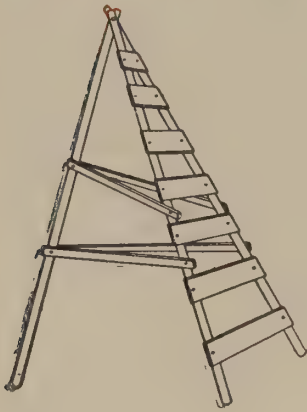
Stop Snow on Gardens

GOOD gardens without irrigation can be secured by encouraging snow to pile up each winter in the garden space. Tests show that 4 inches of water are obtainable from every 12 inches of firmly drifted snow. Snow traps can be made by using snow fence, brush, or other obstruction.

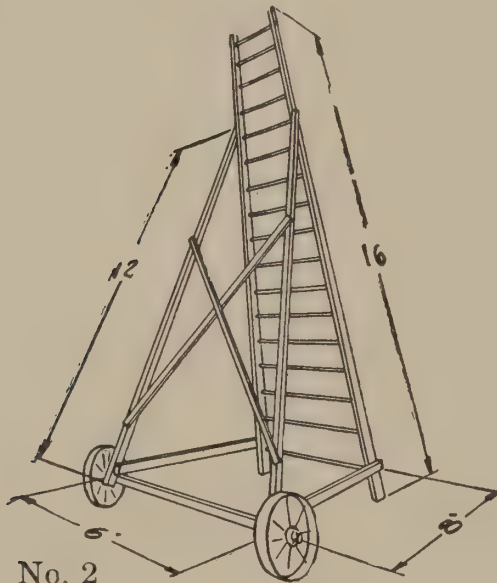
CROP HANDLING TIME SAVERS

Stalk Rake

Ladders for Fruit Picking



No. 1



No. 2

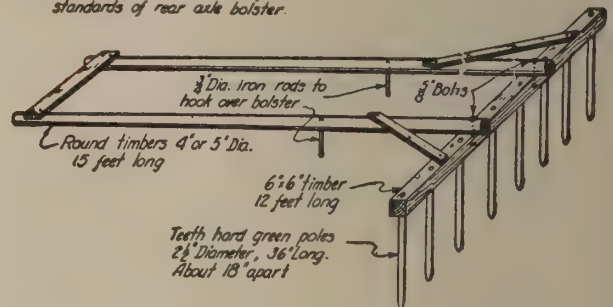
NO. 1 shows a simple tripod type of orchard ladder that is easy to move around and is self-supporting on uneven ground. It should be made of poles about 10 feet long and two inches or slightly larger in diameter. Nail it together so that the feet are about six feet apart.

No. 2 is a similar one with wheels that is easier to push along but does not stand as solidly on uneven ground. In building this one be sure to fasten the side braces at the top at such a height that they will be a foot or more back of the wheels. You can then work clear to the top of the ladder. When moving pick up base and move as a wheelbarrow.

AN EASY-TO-DUMP stalk rake for use behind a wagon can be made from scrap material.

Use timbers about the sizes shown on the sketch. Teeth can be made from green poles about two and one-half inches in diameter and three feet long. They should be set into

Width of frame to be loose fit between standards of rear axle bolster.



the 6x6 crosspiece by boring two-inch holes and driving them in.

The rake should be set so that the teeth will be about three feet behind the rear wheels of the wagon.

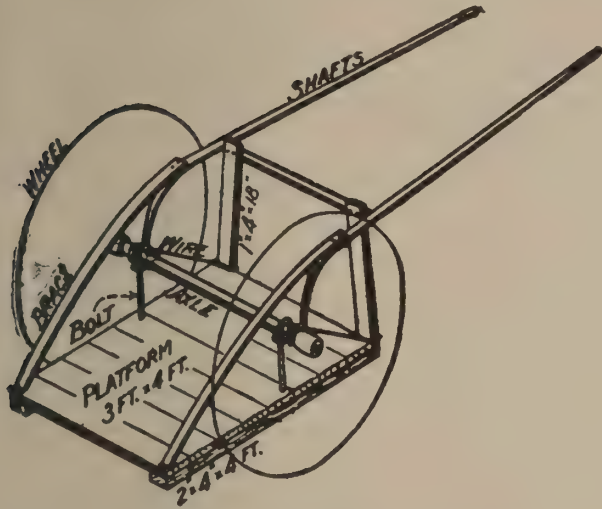
To operate the rake, take two heavy planks and lay on wagon running gears to stand on, place long timbers of rake between standards of rear bolster, with iron pins in front of bolster. The rake will be nearly balanced and can be dumped by bearing down on the front crosspiece and lifting the rake head. The height of the rake head to rear axle gives the proper slant to the teeth.

A Milk Cart Saves Lifting

THIS cart is made out of a pair of shafts and the front wheels and axle of an old milk wagon. Take two 2x4's, about four feet long and nail three-foot boards on them to make a floor. Nail two boards four inches wide and one and one-half feet long to the front end of the platform and up to the crosspiece of the

shafts. These are strong enough as the strain is all on the axle.

Next take two pieces of iron rods,



bore a hole right under the axle in each side of the platform, put a rod through and bring it up and fasten to the axle with a clamp bolt. The platform should be 8 or 10 inches below the axle. Fasten the axle to the front of platform with wires and twist these fairly tight. Two hoops from an old barrel, straightened out and fastened to the rear of the platform up to the shafts, complete the job.

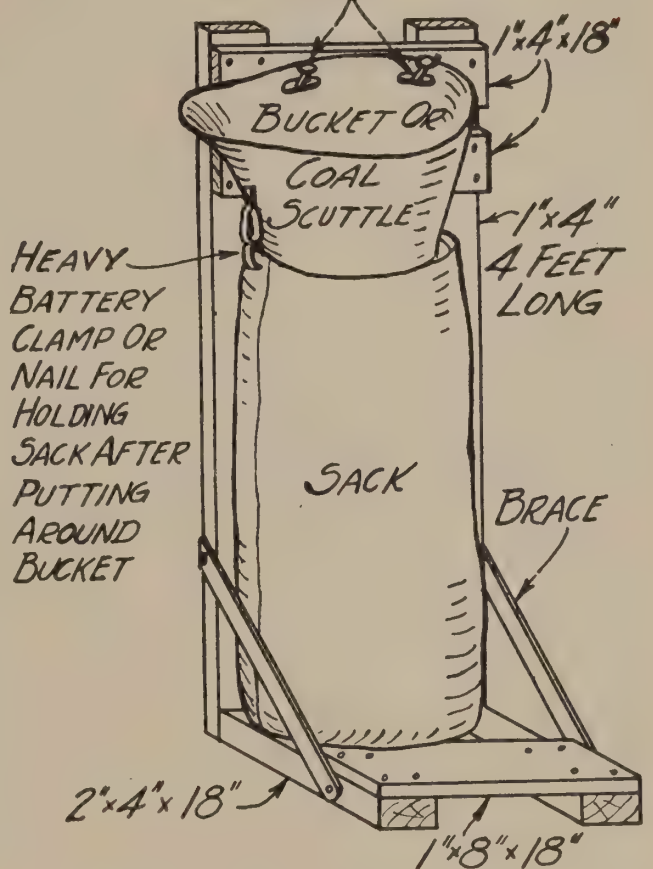


Simple Picker Saves Fruit

THIS picking basket will save its cost every day in preventing bruised fruit and avoiding bad falls and broken trees trying to get the last few apples. Make it as shown from stiff wire. Use a light bamboo pole for a handle. For extra good results make a cloth or paper pad for the bottom of the basket.

Handy Sack Holder

LARGE NAILS FOR HOLDING BUCKET



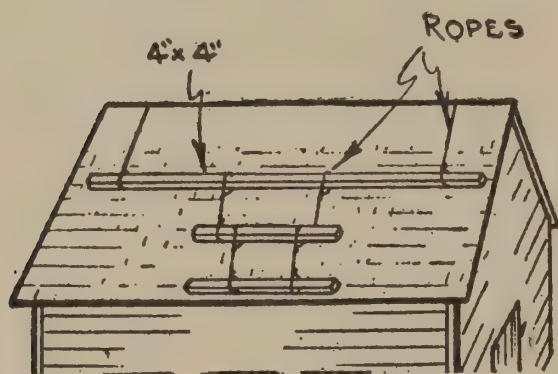
EVERY farm has considerable grain, ground feed, seed grain, and other materials which must be handled in sacks. It is a difficult and time-killing job for one man to fill sacks alone, and yet few farmers have a simple portable device for holding the sack open.

The method of making one from a bucket or coal scuttle will be easily understood from the drawing.

AROUND YOUR BUILDINGS

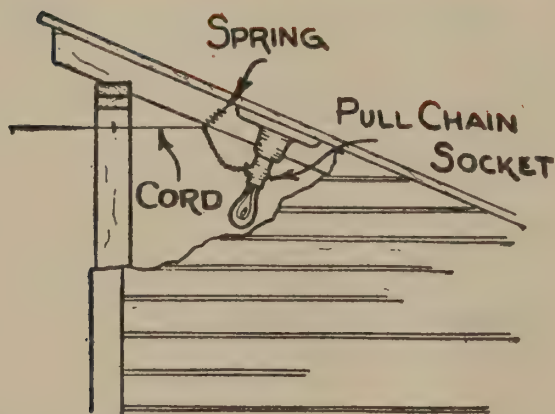
Simple Shingling Scaffold

THE sketch shows a safe and convenient scaffold to use for shingling the roof on a building. For the main scaffold, take a 4x4 tied to ropes which run over the peak and are tied on the other side of



the building. This is large and long enough to hold a large supply of shingles. Scaffolds lower down can be tied to the main one for starting the roof. When the main scaffold is reached, it can be pulled up as the shingling proceeds.

Turning on a Distant Light

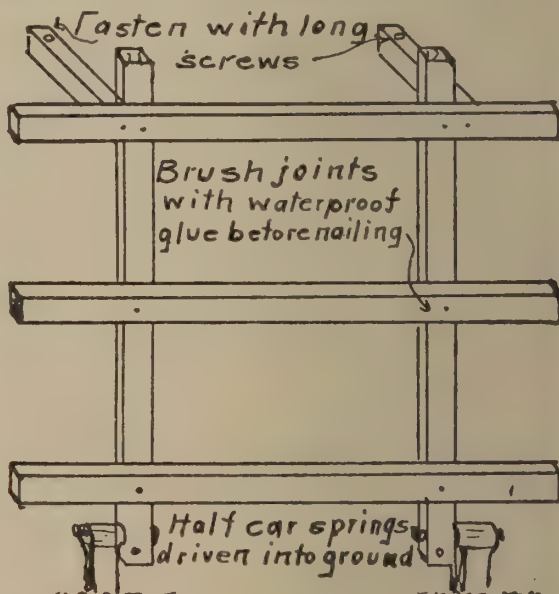


A GOOD many trips can be avoided with a simple to make light control to a distant poultry house, shop, or shed. All that is required is a single cord or wire extending to the house. Use a common pull

chain socket, with a light spring to hold the pull chain up about in line with the pull of the cord. Any pull chain socket can be operated in this way—for instance a light in the basement can be easily turned on or off from the top of the stairs or at the light itself.

Handy Hinged Trellis

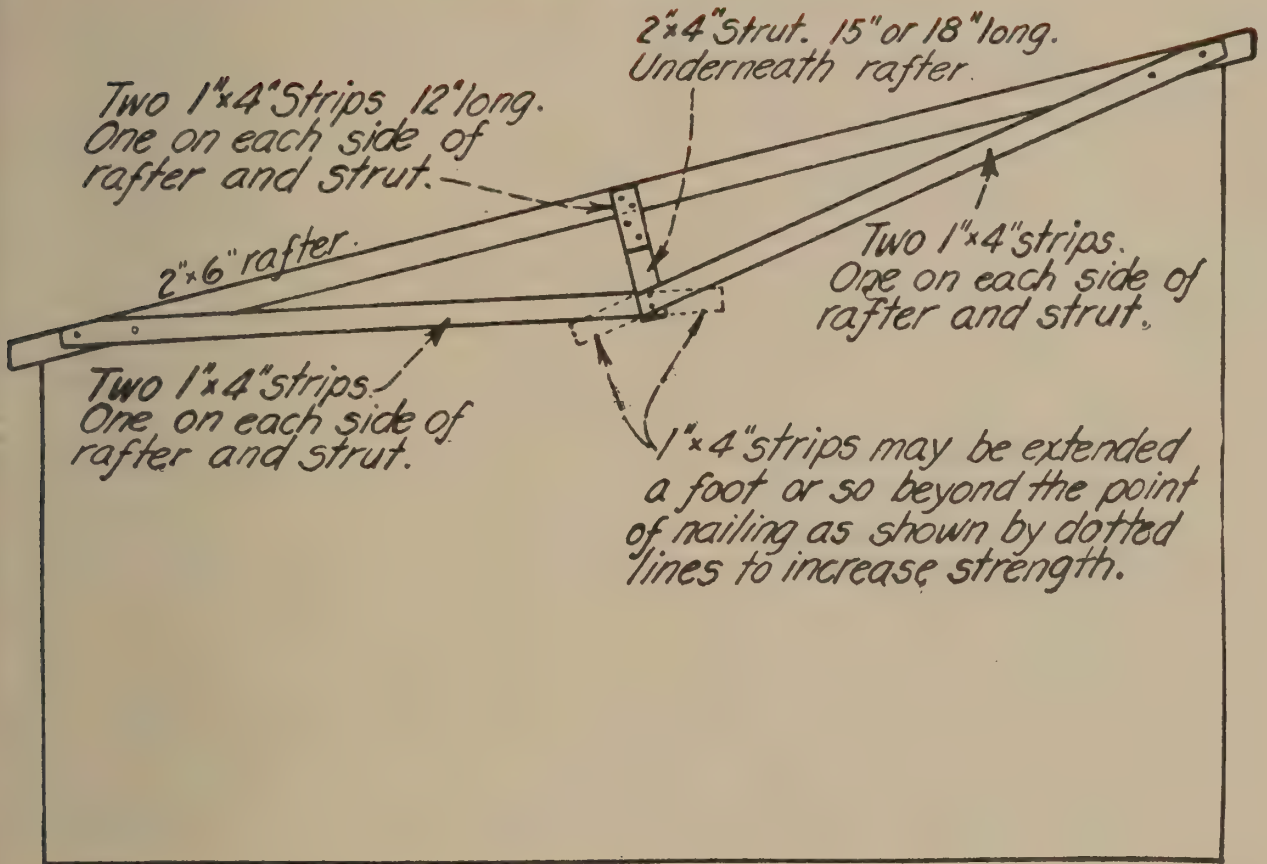
A TRELLIS which can be laid back is a great convenience in painting or repair work. The uprights and crosspieces are of 2 by 2's put together with nails and waterproof casein glue, while the hinge is half the long leaf from a car spring driven into the ground and the shackle bolts replaced with longer ones. Brushing or dipping



with creosote after the holes are bored will prevent the uprights from rotting at the hinge.

PAINTING tool handles bright red or yellow makes them easy to see and discover if you lay them down in the field or barn. Gather all yours together and paint at one time.

Simple Roof Truss

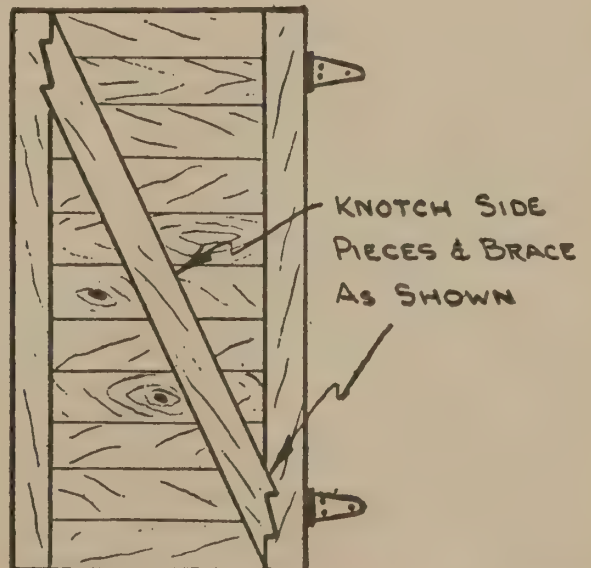


A SIMPLE long span roof truss for feeding sheds, poultry houses, and machine sheds saves considerable inside room by the elimination of center posts. The one illustrated was used in a feeding shed 26 feet wide and 70 feet long without supporting posts, and under a heavy snow load it stood up perfectly.

and marking with an awl or sharp pencil, and sawing to the marks with a thin saw. Gluing the joints will make such a door brace hold like a rock.

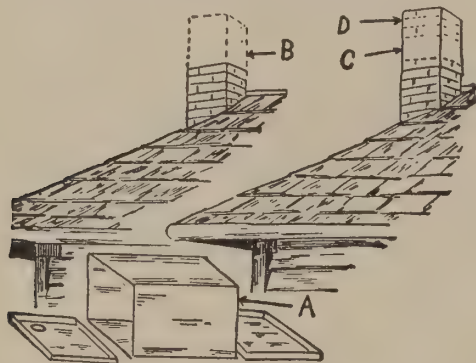
A Sagless Door

IF YOU are bothered with sagging doors on sheds or barn, try this method of bracing them. Your troubles will be over. The joints are matched as shown. This construction is extremely rigid. It is not difficult to match the notches if you first make the cuts on the brace, then laying this in place over the side rails



Chimney Extensions

WHERE one has a chimney that is a bit too short and doesn't draw well, mostly from a down draft caused from trees or other buildings nearby, he can do a neat and inexpensive job of making it a little taller by getting a square, five-gallon oil can and cut off both top and bottom leaving a square tube as shown at (A). As these square cans



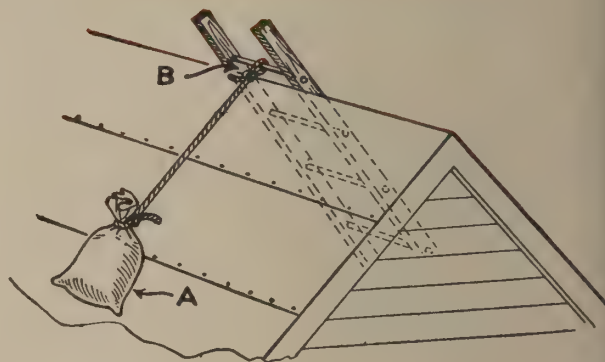
are made in a variety of shapes, some being wider than they are thick and other being square, one has no trouble to fit either a six or eight brick chimney by looking about any oil station.

After the ends have been cut off, the can is pushed down over the top course of brick to a depth at least of one course. Then the tin may be crimped a little against the mortar, the position of the can being shown by the dotted lines (B) and (C) shows the can in place. The can may then be painted red or buff (D) according to the color of the rest of the brick making up the chimney. After painting it the brick color, it is striped with white or light paint to resemble brick.

This makes a light extension that adds no extra weight, will set well and will add a lot to the stove draft.

THE Sinclair name on a can or drum of lubricating oil is a guarantee of quality.

Holds Ladder on Roof



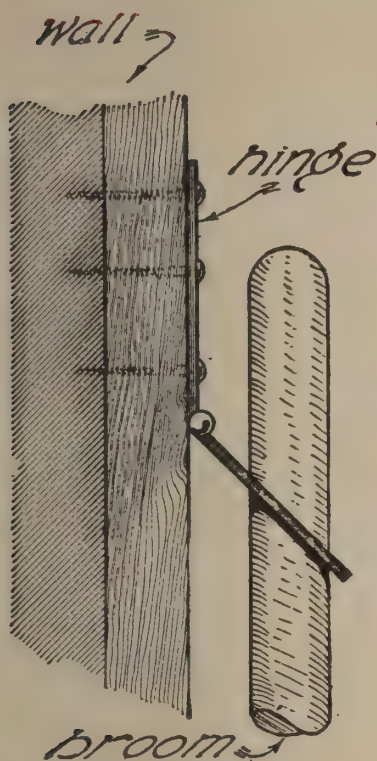
MANY times one wants to do work of various kinds on metal, slate, or composition roofs where the slope is rather steep. The problem is to find a safe way to hold the ladder. The ordinary hook ladder is liable to slip off the ridge cap or the hook damage the roofing.

For a safe and simple ladder holder take a strong sack filled with sand and tie it to the ladder as shown in the sketch. Use about a four-foot rope for easy handling.

Handy Broom Holder

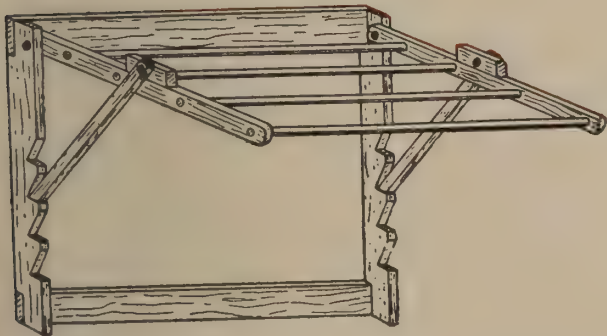
IN THE tidy kitchen it is almost necessary to keep a broom within easy reach. If allowed to stand in the corner or behind the range, it seems as though it is always being knocked over.

A handy holder for the broom can be made from an old hinge. A strap hinge about six inches when open is used. Cut off the tip from one half, leaving about two inches between the end and the middle. Through this bore two holes, each slightly larger than the diameter of the broom handle, and the centers one-half inch apart. This rough hole is then worked into a neat oval with a rattail file and the edges smoothed off.



The other half is then screwed to the casing as indicated by the drawing. This should be high enough to enable one to slip the end of the handle in place without dragging the broom on the floor.

Clothes Drying Rack

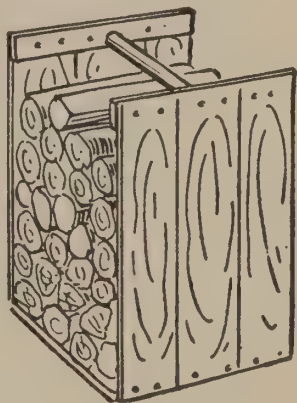


ANY farm boy can make this folding clothes drying rack as shown in the diagram. Get some broom handles, some 1x2-inch lumber in three and four-foot lengths, four small bolts about two and one-fourth inches long, a few screws and nails, hammer, saw, and a brace

and three-fourth-inch bit to enter ends of broom handles into the two side bars.

Trouble Saving Wood Carrier

A LOT of handling and unwelcome muss and dirt in the kitchen can be saved with this handy wood carrier. It can be made from the two sides and one end of an old apple box. Two pieces of inch stuff are nailed to strengthen it and to hold the handle. Grooves are cut in the lower edge of these pieces to take the handle, with a nail driven through each end into it. The bottom should be reinforced by extra nailing. In constructing the carrier, nail it firmly, plane off the corners and sandpaper the surfaces. It can then be painted to match the kitchen woodwork. It does not need to be emptied into the wood box as the wood can be taken from it as required.



A Stitch In Time

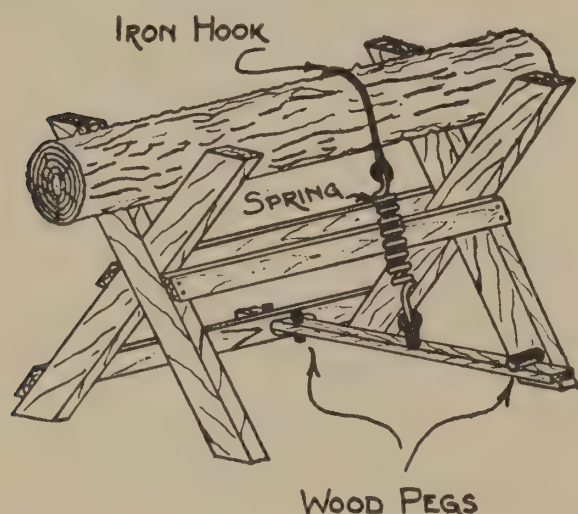
TAKE a "stitch in time" by using good motor oil and grease of the proper grades in your tractor and other equipment. You play safe when you use Sinclair Opaline or Pennsylvania Motor Oil. Ask your Sinclair Agent for a Tractor Chart which shows when to lubricate YOUR tractor and just what lubricant to use.



WOOD SAWING TIME SAVERS

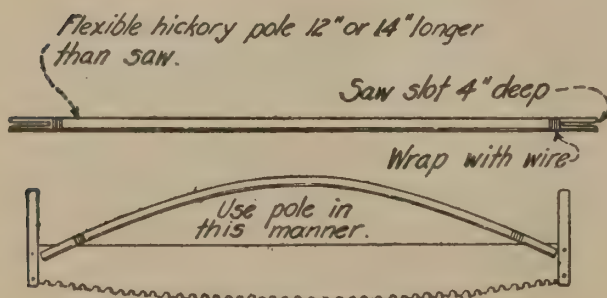
One-Man Sawbuck

THE farmer who prefers to use a one-man crosscut saw instead of a bucksaw will find this log holder a great time saver.



Use an ordinary sawbuck, make out of one-fourth inch or heavier rod a hook large enough to go over the largest log you need to saw.

Fasten the hook eye to one end of a cultivator or other fairly strong spring, and the other end of spring with a rod or chain to a rod or 1x4 stick hinged as shown to a brace on the far side of the buck. Drive one or more spikes or pegs into the lower part of the buck leg on the near side, and adjust the length of chain so that pushing the 1x4 down and under the peg or spike will stretch the spring and hold log down.



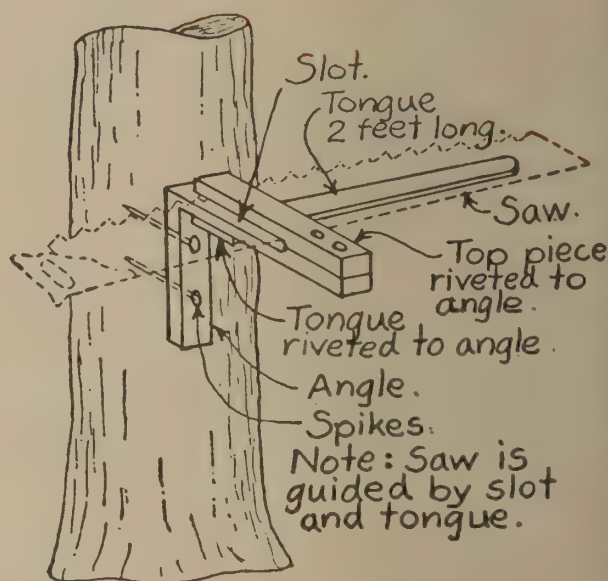
One-Man Saw Device

YOU can make an excellent one-man saw from any ordinary crosscut saw.

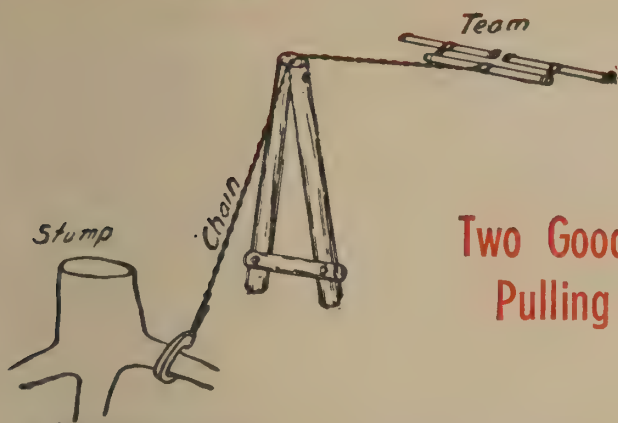
Take a hedge or hickory pole about one inch in diameter, about 12 to 14 inches longer than the saw blade, saw each end in about four inches, and then wrap above the cut with small wire. Slip each over top of saw blade just behind the handles.

This will keep the saw from buckling and swaying and makes a faster cutting and more satisfactory outfit than a regular one-man saw. Always remove the brace at night.

One-Man Saw Holder



THE two-man crosscut saw is the usual method of cutting down the larger trees, but where one man must work alone, a saw guide is almost a necessity. This consists of an angle with a slot to hold the saw, which can be spiked lightly to the trunk at the proper height and with a tongue extending to side where saw slides to prevent vibration.



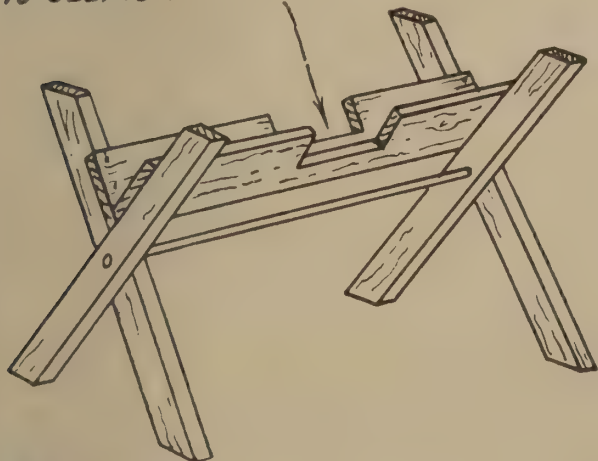
Two Good Stump Pulling Ideas

A FEW minutes work will produce this simple but powerful stump puller to be used with team or tractor. Use two posts about six inches in diameter and five or six feet long and bolt them together at top, with a crosspiece at the bottom as shown in the sketch. A heavy chain going over the top of the posts and a grab hook for hitching on the root completes the job.

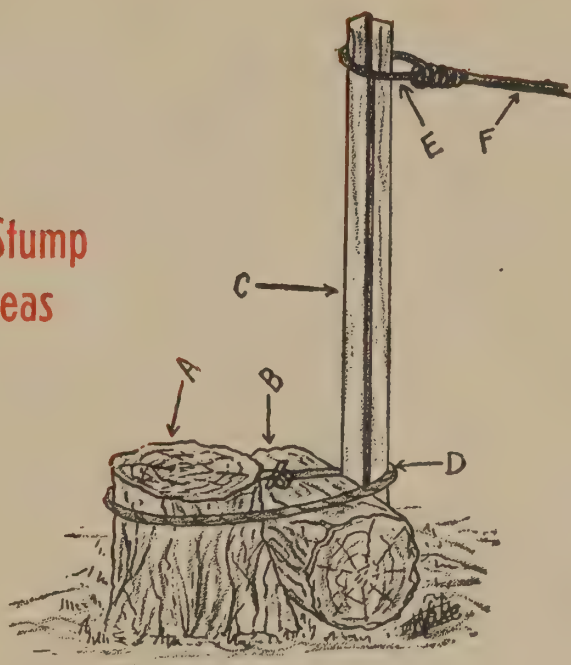
This puller will do the job that ordinarily would require dynamiting and will help to clear land at a considerable saving in cost.

Sawbuck Will Not Pinch

TROUGH TO SUPPORT WORK FULL LENGTH AND SLOTTED AT CENTER TO CLEAR SAW BLADE.



A NON-pinching sawbuck will be found very convenient for sawing cordwood or posts, as these



THE man having a stump or two on the place that are in his way, doesn't feel like buying an expensive stump puller, but he can easily pull them as shown in the drawing. Cut a block from a log about as large as the stump and lay beside it as shown at (B). Then a chain rope, or cable around the stump, as shown at (D) and a piece of railroad iron, or a strong pole, according to the size of the stump slipped in the loop of the tie at (D), the pull bar being shown at (C). Then attach a rope or cable to the pull bar at (E) and hitch a team or tractor to the rope at (F). Small stumps up to four or five inches in diameter can be pulled with one horse or even a couple of men.

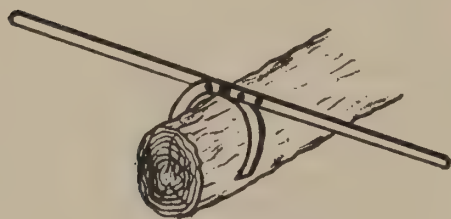
can be partly sawed through in the middle notch, and then are properly supported when pushed out so the stick can be cut completely through.

SINCLAIR P. D. Insect Spray is sure death to flies and mosquitoes.

Two-Man Log Lifter

TWO REQUIRED

DRILL HOLES &
CUT ENDS AS SHOWN



A HANDY two-man log lifter can be made from two shovel shanks off a discarded cultivator. Each shank is drilled as shown with four holes to accommodate both large and small logs. The connecting bolt should fit into the hole easily, and be fastened with a nut and wing lock nut, so that it can be loosened and spun off by hand without having to look up a wrench.

The device is simple and inexpensive and ought to be a great convenience in lifting logs to prevent the saw from pinching and for handling small saw logs and heavy blocks.

THE long leaf from an auto spring slipped under the tongue, over the tongue bolt, and under front axle will hold up the tongue to keep it out of the mud and relieve weight on horses' necks.

USED crankcase oil is fine for preventing rust on cultivator shovels, garden forks, hose, plow moldboards, etc. Dip the tools in it after cleaning, and keep a swab on the plow saturated with it.

To Carry Hay or Straw

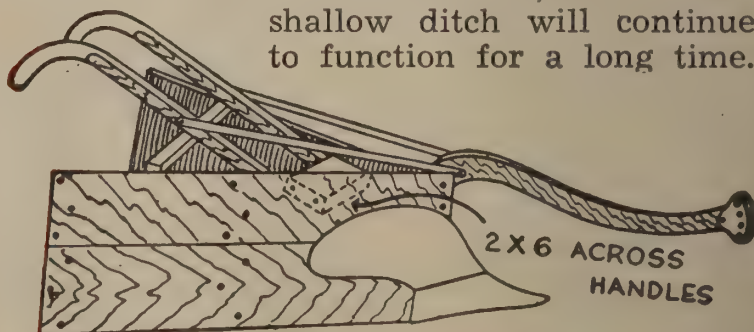
TO CARRY hay or straw a considerable distance for feed or bedding, tie together the ends of a light rope about 30 feet long. Lay the ropes down at the stack in a long loop with the sides about three feet apart. Tie three heavy cords from one rope to the other. Now pile the straw high on the ropes, pull one end loop up through the other and draw it tight, and you can hold about as much straw as you can lift.

Another good way is to take 10 or 12 feet of wide poultry netting, tie a light rope to the corners at each end so as to make a short loop, and draw one loop through the other when it is loaded.

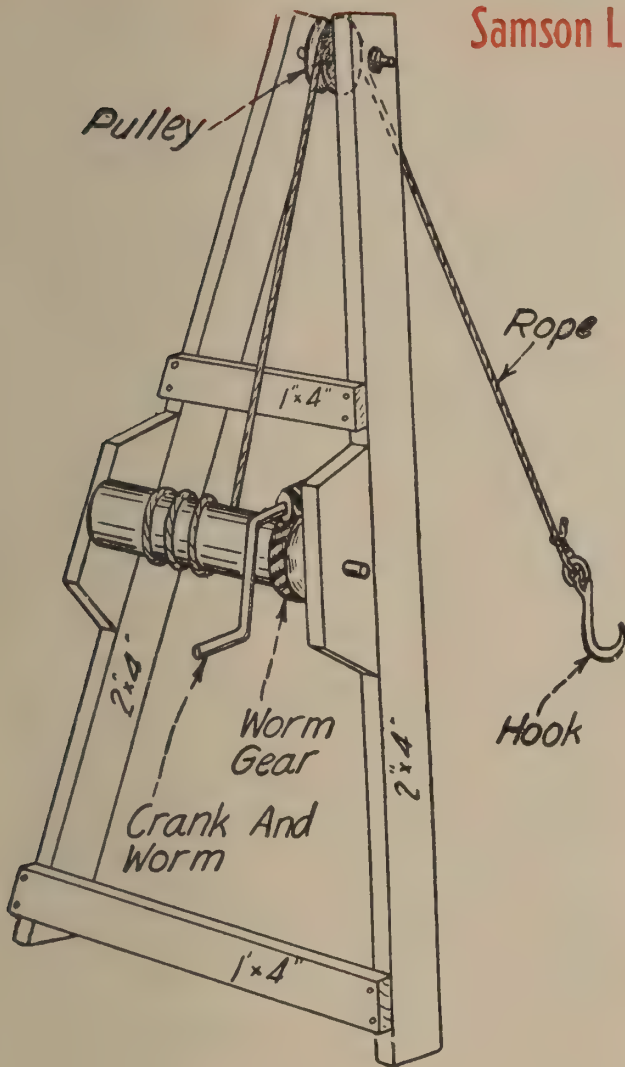
TAKE your choice: Sinclair "Pennsylvania" or "Opaline" Motor oils. Both are Number One Quality for motor car, truck and tractor.

Snow Plow or Ditcher

THERE are quite a number of walking plows scattered around the country. Even on the open prairie a few superannuated breaking plows are left. A walking plow can readily be rigged up to make a snow plow or a shallow ditcher. On the level prairie a very shallow ditch will frequently drain the water away from buildings in wet seasons and avoid the accumulation of mud. A furrow soon fills in, but a wide shallow ditch will continue to function for a long time.



Samson Lifting Device



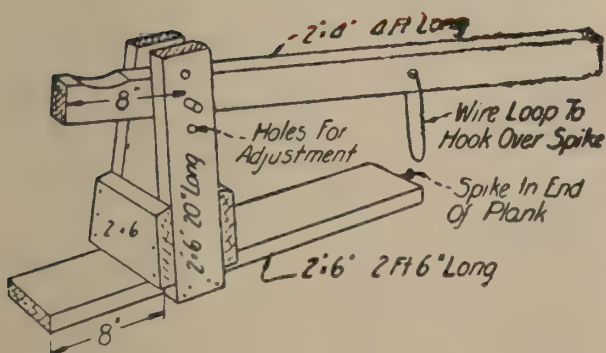
YOU will find many uses for the homemade lifting device shown in this sketch.

Cut the uprights about nine feet long and spread them about four feet apart at the bottom. The worm gear can be taken from an old binder or some other piece of machinery. To make the windlass roller, take a piece of hardwood as large in diameter as you wish the windlass to be, find the center at each end and make a circle with a pair of compasses, then trim to the circles, using a straight edge to keep the work true.

Keep one side of the hoist free from projections so that in raising and lowering it will not catch or hang. Use a three-fourth-inch rope and a large hook. The worm gear will not run backwards when stopped and if carefully lubricated will give tremendous lifting power.

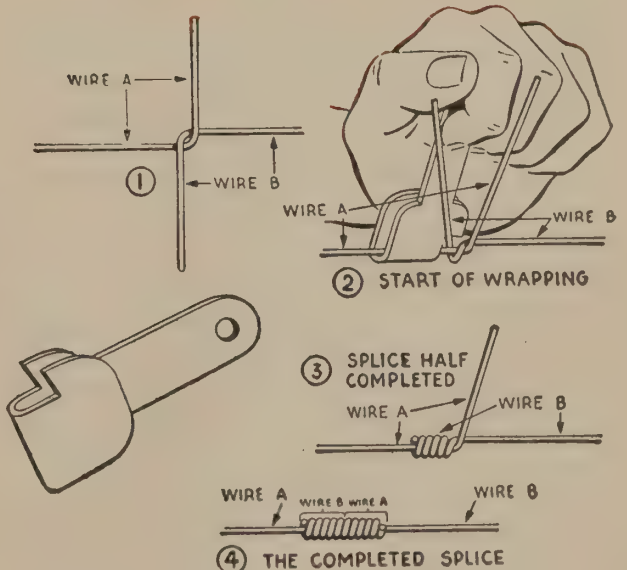
This device can be used on the ground or on the front or rear ends of a wagon.

Wagon Jack



A FEW pieces of good lumber make a sturdy and serviceable wagon jack that is very handy for jacking up wagons for greasing or changing.

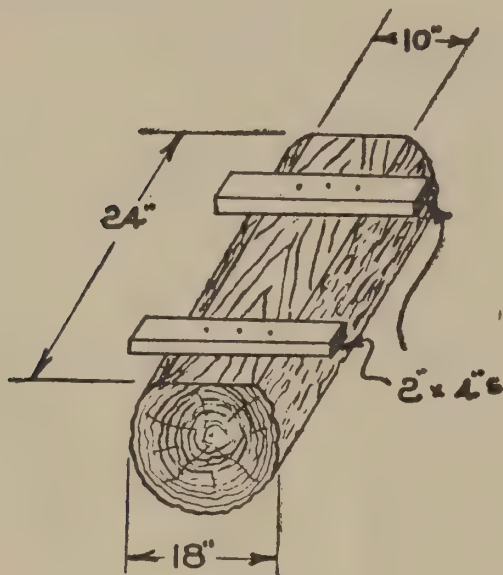
"Republic" Wire Splice



Also called the "Western Union" splice. Add more turns for small wire.

To Drain Fuel or Oil

AN EFFECTIVE way for one man to handle a barrel of fuel or oil, using material nearly every farmer has, is this simple tipping device. Take a block of wood 12 to 18 inches in diameter and 24 inches long, flatten one side to a 10-inch face, and nail two short 2x4's on the face as shown.

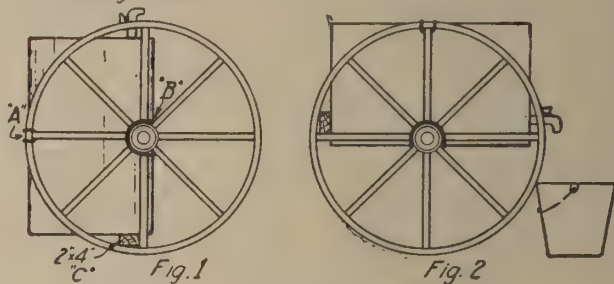


Lean the barrel against the face so the faucet will be down, roll the block until the barrel nearly balances, and hold with a block or stone. You can now pour at your leisure, and practically no lifting is required, even with a full barrel.

Barrel Tipping Device

A PAIR of old car or buggy wheels may be used to rock a barrel of oil or fuel up so the contents can readily be drawn out in a bucket or measure. First place the wheels and barrel in position as in Fig. 1. Wire the two wheels together on each side of the barrel as at (A). Also chain or wire the two hubs together at (B). Then rock barrel back and place a piece of 2x4 through spokes

Fasten Wheels Together At "A" With Wire.
Fasten Hubs Together At "B" With Chain
or Heavy Wire

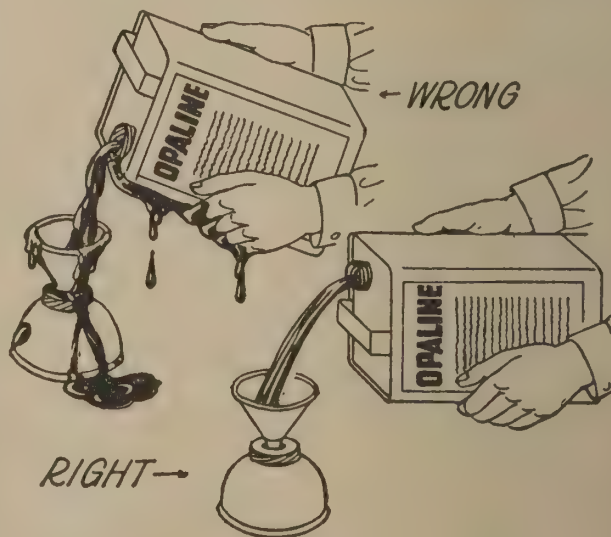


of wheel under barrel as at (C). To get some oil, rock the barrel forward on wheels as in Fig. 2, and it is high enough to get a pail or measure under it.

Trick Worth Knowing

THERE is a right and a wrong way to pour oils or other liquids from the common type of tin cans. Don't turn the can with the spout or opening down, as shown at (A), as this causes a bubbling and gurgling owing to the air rushing into the can.

To pour it in the manner shown



(B) is correct, with the spout or opening at the top side of the can. This enables one to pour an even and small stream.

WORKSHOP HELPS

Workshop Stove

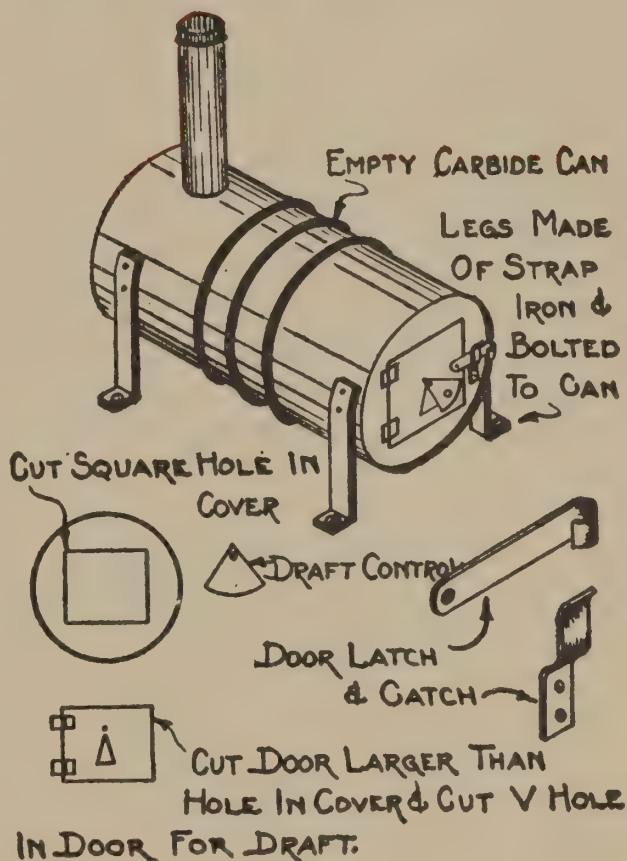
IF YOUR shop needs a stove so you can be comfortable on cold or rainy days, make one out of an old carbide can or an oil drum.

First cut a hole in the side of the can near the bottom for the stove pipe. Cut the hole about two inches smaller in diameter than the pipe to be used. After the hole has been cut, center the pipe over it and mark around the pipe. Then cut slits from the hole out to the mark, and bend the strips between the slits up or out, and try the pipe to see that it slips snugly inside the row of bent strips.

Cut slits about two inches long all around the end of the pipe, slip the pipe into place and from the inside bend the pipe strips out so the pipe cannot be pulled out. Drill a few holes through the can and pipe strips and bolt the two together with stove bolts so they will be solid.

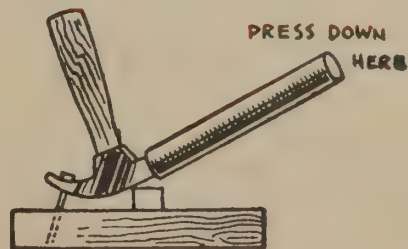
Cut four legs about 15 inches long from strap iron, bend them to fit the can and fasten each with two small stove bolts.

Now put the lid on the can to see which part will be at the top, and then cut a fuel hole about eight inches square. Cut from heavy galvanized iron a fuel door a little larger than the fuel hole, cut a V-shaped draft hole near the bottom, and hinge the fuel door at the side with some kind of a latch as shown. Next cut a piece of tin a little larger than the draft hole and hinge at the top with a stove bolt so it can be swung to one side to open the draft as much as desired. Put about two inches of



sand or ashes in the bottom, and you have a stove that really is a heater.

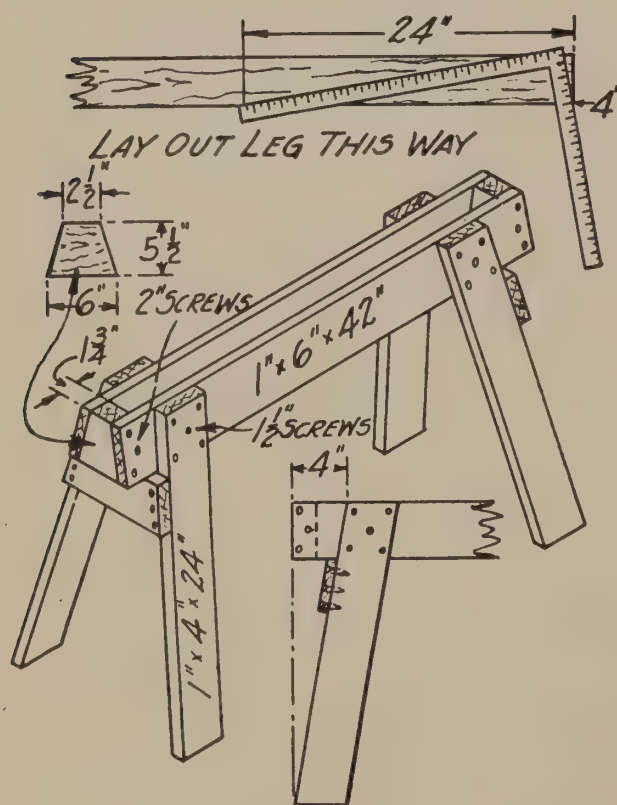
Saves Hammer Handle



WHEN pulling spikes, especially rusty ones which do not come out easily, a bit of gas pipe about 20 inches long, that will slip over the business end of the hammer, can be used as a lever. It will give more leverage and avoid breaking the hammer handle.

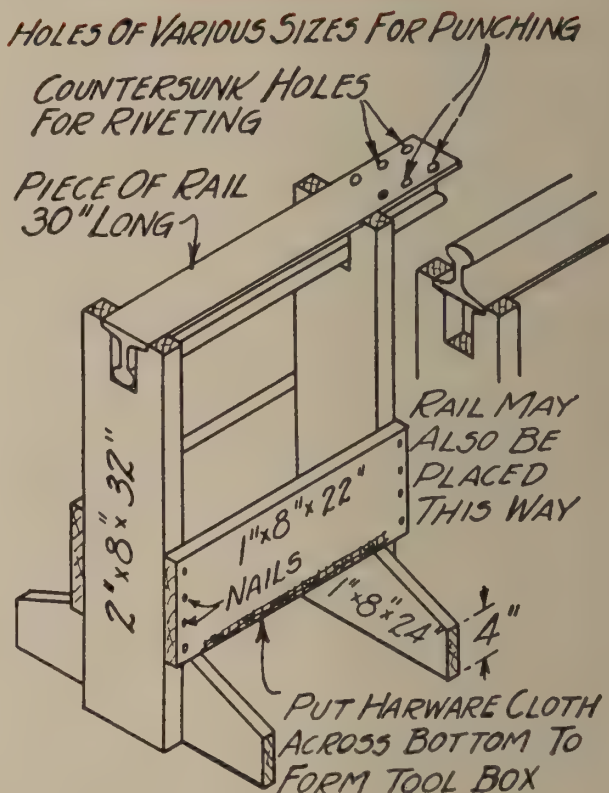
Open-Top Sawhorse

NO ONE can do efficient repair or construction work without at least two good sawhorses. Open-top sawhorses can easily be made out of scrap material around every shop, are light and easily handled, and are very convenient for the many repair jobs around the farm. The chief advantages of the open top are for ripping short boards and for holding a stick or a handle in a vertical position where a vise is not available.



The saw horse will be at least twice as strong and rigid if all joints are glued and will last longer if painted or oil treated. If intended for use with heavy timbers and poles, the legs should be 2x4's and the cross braces of one by eight-inch material.

Homemade Anvil



ONE of the most convenient pieces of equipment in the farm workshop is an anvil.

A short piece of railroad or street car rail, which can be bought very cheaply from section foremen or junk dealers, makes a very satisfactory one. It is fine for straightening, flattening, bending either square or rounded shapes, punching, riveting, replacing mower sections, etc.

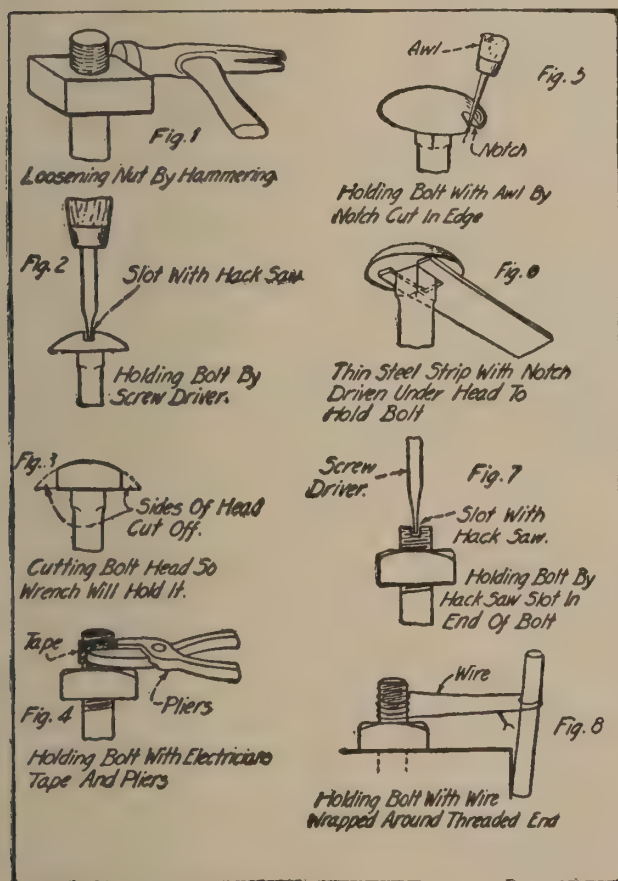
The method of mounting shown makes an outfit which can be moved from place to place, or it can be mounted on a concrete base if preferred. The framework will be very much more rigid if the joints are brushed with casein or other waterproof glue before being put together. Bolting the frame together also adds to its strength and rigidity.

THE tractor conditioning check list at the back of this book can save you lots of time and trouble.

Removing Stubborn Nuts

REMOVING bolts where the nut has rusted fast and the bolt turns in the hole becomes both annoying and time consuming. Perhaps these suggestions may save your time and temper.

Kerosene is usually quite effective in cutting rust and loosening frozen nuts. Put on plenty of kerosene and let it soak in for an hour or so, then put on another supply, and usually by that time the nut will be loosened enough so it will start. Commercial penetrating oils are even more effective than kerosene when used in the same way.



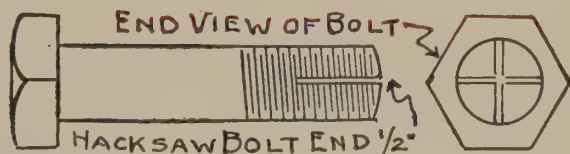
Holding a heavy hammer against one side of the nut and striking the opposite side lightly with another hammer, if carried around the different faces, will help to loosen the

nut enough so the kerosene can get in and do its work more quickly. Holding a piece of hot iron against the nut is also quite effective, partly because the heat expands the nut faster than it does the bolt and partly because the kerosene or other material works more rapidly when heated. Usually the most stubborn nut can be loosened if well kerosened and grasped by red-hot tongs.

Once the nut is loosened, it and the bolt should be oiled freely and then gradually worked off. Patience in working the nut back and forth, advancing it a little each time will usually conquer the worst ones.

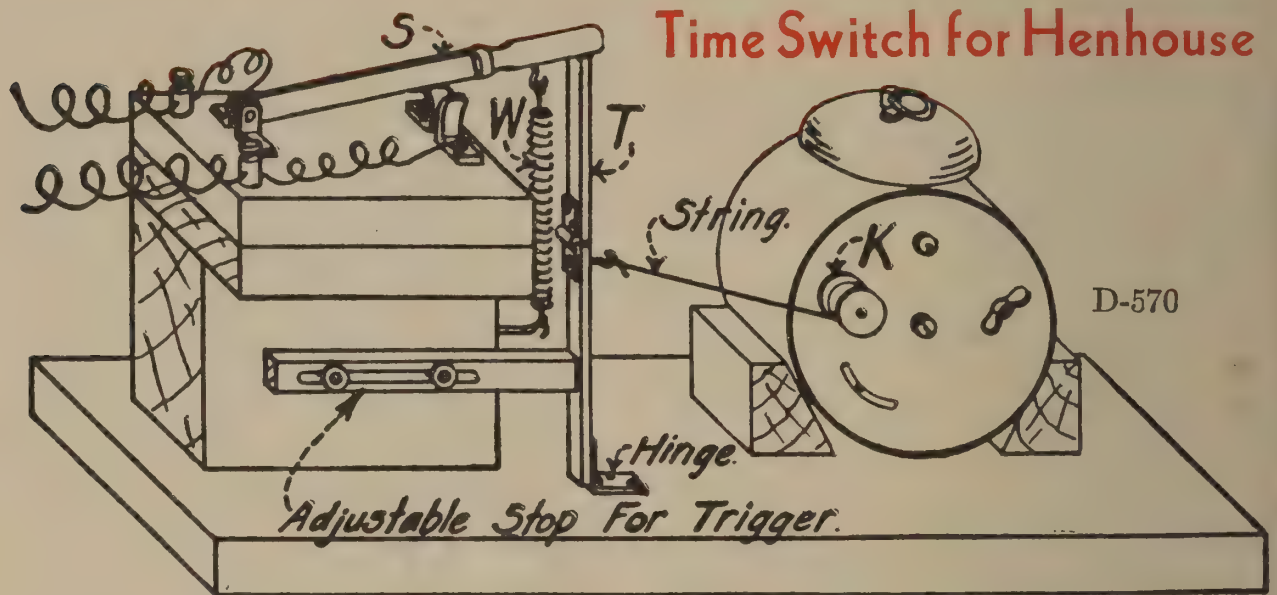
If another nut is available, however, often the quickest and cheapest way of removing a stubborn nut is to split it off with a cold chisel. This is the method generally used in automobile and tractor repair work.

Tapered Thread to Clean Nut



QUITE often a nut becomes battered so that the bolt threads will not enter. The diagram shows a simple way to overcome this trouble and straighten out the threads in the nut. With hacksaw make cuts at right angle in the end of the bolt and draw the parts together in the vise so as not to damage the threads. The tapered thread will enter easily and clean out the threads in the nut.

GOOD cupboards for shop use can be made from old wooden boxes. Line them with cardboard or roofing paper to make dust tight. Hang from ceiling or against wall with short pieces of old chain. They can then be easily moved if desired.

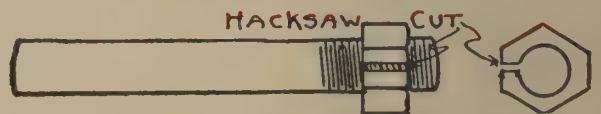


Time Switch for Henhouse

THIS simple and inexpensive device is quite effective. Whenever the alarm goes off, the winding stem or key for the alarm begins to revolve and a string wrapped around this key or around a spool fastened to it will exert quite a strong pull, quite enough to operate the trigger which allows the knife switch to be pulled into place. The alarm should be wound only a turn or two.

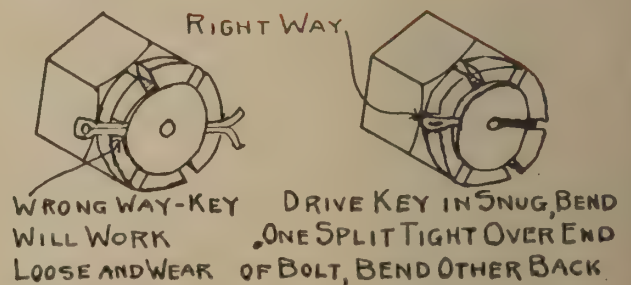
The arrangement is shown in the diagram. (S) being the single-blade knife switch which turns on the feeding pen lights, (T) is the toggle trigger which holds the switch open, (W) the weight or spring which closes the switch, and (K) the alarm winding key with a string which pulls on the trigger when the alarm goes off. A trigger and weight are necessary, as the switch contacts will be burned unless the switch is closed quickly. The trigger should be of the toggle type, that will support the weight easily as long as it is straight, but which will double down whenever a very small side pull is applied near the middle. Such a toggle could be made out of an ordinary folding foot rule.

To Hold Threaded Bolt



IT'S easy to hold a threaded bolt in the vise while the other end is being threaded. Make a hacksaw cut in one side of a nut which fits the bolt, screw it on and clamp it in the vise, and the bolt will be held securely without damages to the threads. Smooth rods and tubing can be held in the same way.

How to Use Cotter Pin

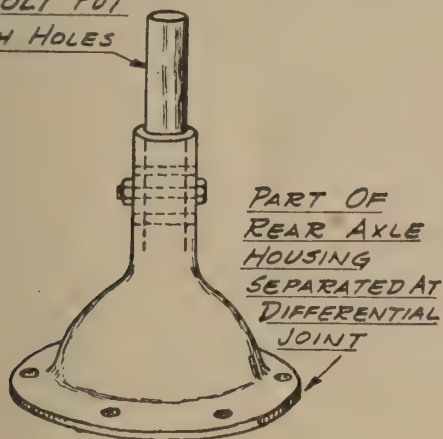


MANY farmers do not know how to put cotter pins in connecting rod bolts and other fast-moving parts. The proper way is that used by all good mechanics.

Simple Machinery Supports

MANY a mechanic has been seriously injured by a machine slipping off a jack or blocks while working under it. A good, solid wide-base repair stand will eliminate all chances of such accidents.

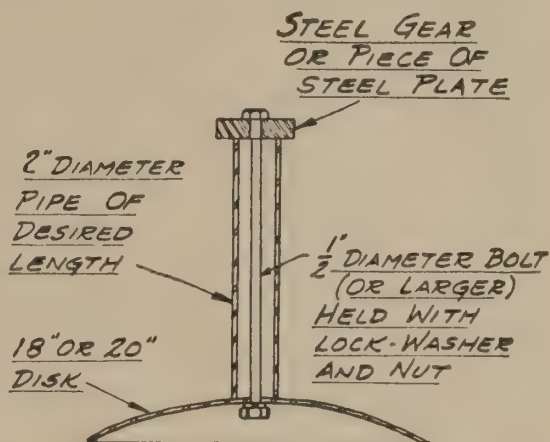
LARGE PIPE WHICH
WILL SLIP INSIDE
HOUSING. SUPPORTED
ON 1/2" BOLT PUT
THROUGH HOLES



PART OF
REAR AXLE
HOUSING
SEPARATED AT
DIFFERENTIAL
JOINT

A very simple repair stand is easily made from the rear axle housing of an old car by separating it at the differential joint and cutting off the wheel end at any desired length. This can be made adjustable by us-

ing a piece of large pipe which will just slip inside the housing, and supporting it on a one-half inch bolt put through holes bored through the housing at various heights.

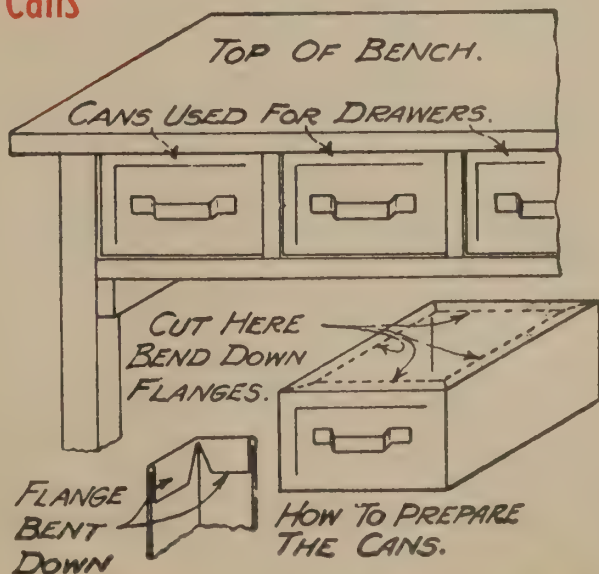


Another style can be made from a discarded disk from a disk harrow or plow and is even a better repair stand where it has to be used on soft ground. The base is a disk and the upright is a length of 2 or 2 1/2-inch pipe. The disk is placed with the concave or hollow side down, and the pipe is held in place with a one-half inch or larger bolt run through the center hole of the disk and through a steel plate or gear on the upper end.

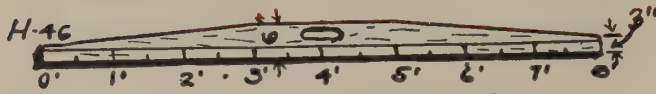
Use for Old Oil Cans

YOU can make excellent use of discarded gallon and half-gallon flat varnish and oil cans as drawers around a work bench to hold various small articles, such as rivets, bolts, nuts, washers, and small tools.

To do this, cut out one of the flat sides, cutting about one-half inch inside the edges as indicated and then up into each corner, to allow the edge to be pounded down so as to make a double edge. This makes the top stiffer and stronger and prevents cutting your hands on a ragged and sharp edge.



Plywood Straightedge

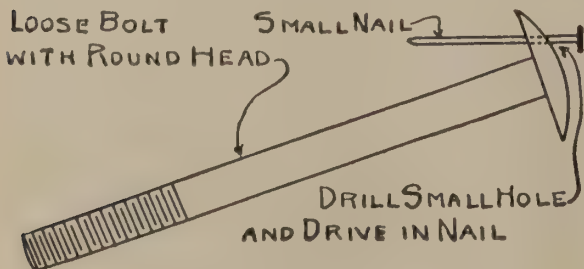


A STRAIGHTEDGE made from a single piece of any ordinary wood is almost sure to warp either edgewise or sidewise or both. However, if the straightedge is made from three-quarter inch plywood with the grain of the outer plies running lengthwise, there will be no trouble from warping, since the plies tend to hold each other straight, and the glue used is moisture resistant.

A similar straightedge up to 16 or even 20 feet in length can be made by cutting six-inch strips lengthwise from a sheet of one-fourth-inch plywood, nailing four thicknesses of these together with the joints broken and the surfaces in contact brushed with water-resistant casein glue. When dry, the straightedge can be cut to shape and the working edge finished with a long jointer plane until truly straight.

To Keep Bolt from Turning

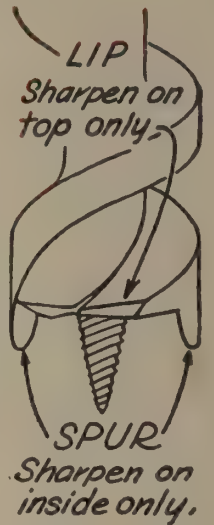
THE diagram shows a simple but very effective way to hold a loose carriage bolt from turning. Simply drill a small hole through



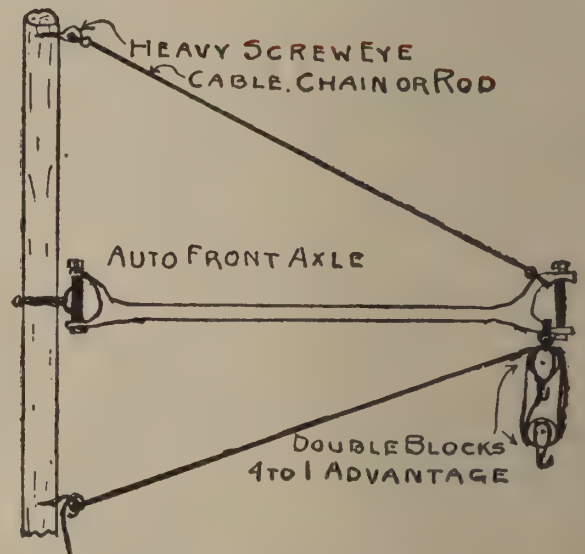
the head at such an angle that a nail driven part way will enter solid wood.

To Sharpen Auger Bits

DULL bits are a waste of energy. To sharpen use an auger-bit file or small taper file. The lip is sharpened by resting the point on a board and then filing only on the **upper** surface of the lip. The spurs are sharpened by filing them on the **inside** only. Any filing on the outside will make the bit cut too small a hole and cause the twist to bind. If the screw is rusted or badly worn, the bit will work better if the threads are cleaned out and sharpened with a small taper file.



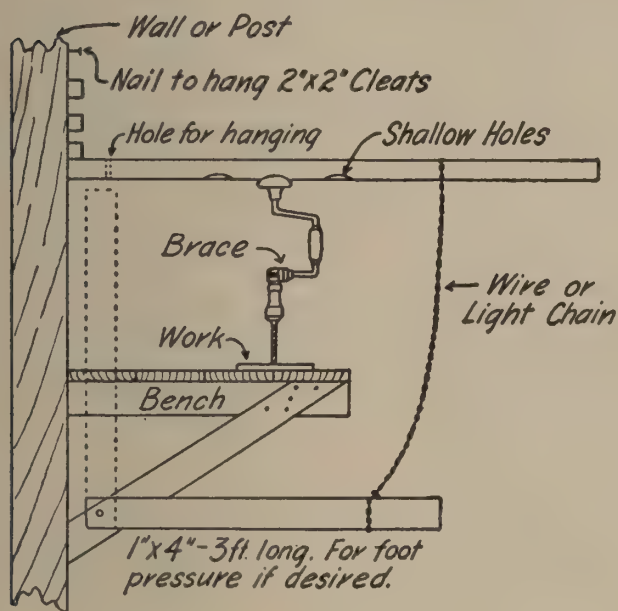
Simple Farm Hoist



A HANDY hoist for raising heavy hogs at butchering, lifting the engine out of a car or tractor can be made from the front axle of a car, a cable or chain about six feet long, and a fence stretcher or block and tackle. It can be swung from a tree, heavy pole, or building.

Metal Drilling With Hand Brace

AN ORDINARY hand brace can be made to save a lot of labor in drilling holes in iron as shown in sketch below. The easiest way to make the shallow holes to hold



the round brace head is to burn them with a red-hot iron door knob or large pipe cap. A good sized clamp is desirable to hold metal pieces for drilling.

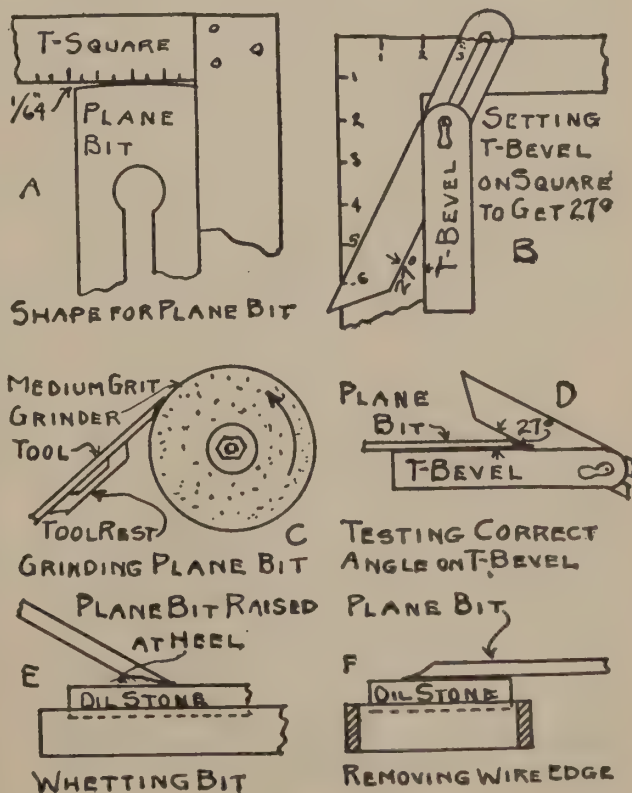
Sharpening Chisels and Planes

EVERY farmer should have at least a 14-inch jack plane and a small 7-inch block plane, if he does any construction or repair work at all. Even those who have these get very poor results, because a dull plane wastes time and material and does a botched job. A few simple directions will enable anyone to keep his planes in good condition ready to do first-class work.

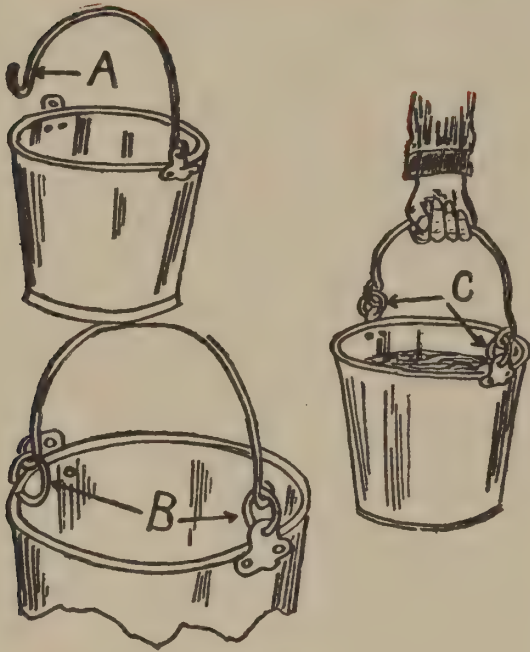
A smoothing plane bit should be at right angles to its length but

rounded about 1/64-inch at the corners to prevent ridges on the planed surface, as shown in H-85-A. Next set the T-bevel at an angle of 25 to 30 degrees, as shown at B, and grind the bit on a medium grit grinding wheel. Test the angle with the T-bevel (D) until a slight wire edge can be felt. Dip the edge in water occasionally, as overheating as shown by a bluish color will ruin the temper. The bit should then be whetted on a good oil stone, lifting it slightly at the heel (E) so it touches for about 1/32 back from the edge. The bit should then be rubbed flat on the stone (F) to remove any remaining wire edge. A plane bit should be whetted several times before it needs regrinding, and less sharpening will be needed if a scraper and brush are first used on boards to remove grit.

Chisels should be sharpened in exactly the same way as plane bits, except that the corners are not rounded.



This Pail Prevents Slopping



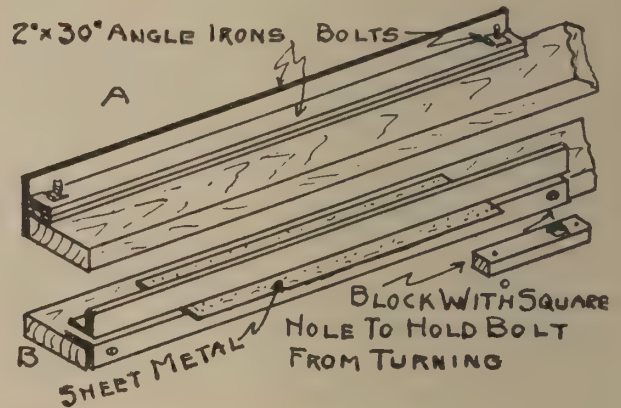
THOSE who carry pails of water or other liquids any distance find it very annoying to have the contents slop out on their feet and clothing. A pail can be made nearly slop-proof by spreading the eye of the bucket bail as shown at (A) so to slip off the ears. Then get a link from any light chain and clip the link in the ear of the pail as shown at (B) also on the eye of the bail. The link is then closed as shown. This does away with the pail getting in step with those carrying it and prevents slopping.

Sheet Metal Bender

THIS handy sheet metal clamp will be found very convenient for making square bends in sheet metal for use on self-feeders, roofing, and gutters. It is simply one two-inch angle iron three to four feet long fastened on the edge of a somewhat longer two by eight with heavy flat-

headed screws placed both in the top and edge of the board.

A second two-inch angle operates on the first one by using two $\frac{1}{2}$ by $3\frac{1}{2}$ -inch machine bolts with the heads below the board and covered with hardwood blocks with square depressions to keep the bolts from



turning. The metal is placed as at B projecting to the line of the desired bend, and the nuts drawn down tight. The bend can then be easily made with the hammer or mallet.

Using Left-over Paint

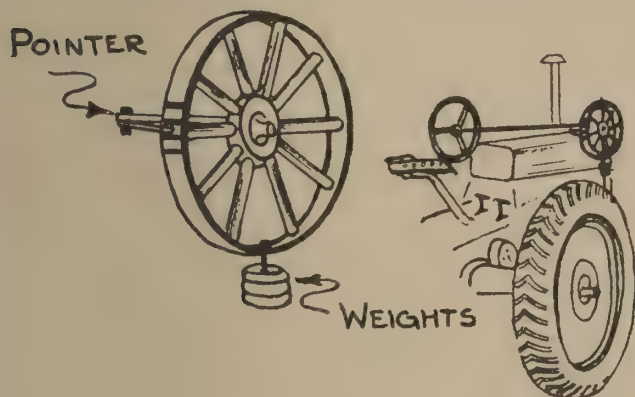
AFTER nearly every paint job there are small amounts of different colors left over. After standing a long time they become covered with a heavy oil skin, and require too much time and trouble to clean out and strain.

A better way is to keep a good gallon can marked "Paint Remnants" into which you stir all left-over paint. If the lid is closed tightly and the can turned upside down each time, very little oil skin will form. Such paint will be uncertain in color, but is fine for painting ladders, machinery, gates, feeders, first coat on old lumber, etc.



Running a Contour

MOST farmers realize that erosion is taking a heavy toll of the fertility and would like some simple method of plowing and farming on the contour. The great drawback to such work is the difficulty in getting the contours laid out accurately at a reasonable cost. If he hires a high-priced engineer to run the levels, it means a heavy expense



and he may not have time to do the work when he can get the expert.

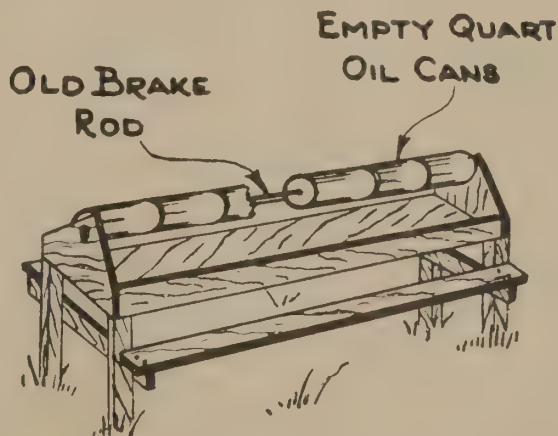
It is possible for a good operator, with the help of the simple contouring device shown in the diagram to drive his tractor so as to lay off a contour accurately enough for all practical purposes. It is nothing more than the front wheel and spindle from an old car, with the spindle and radius arm clamped or bolted to some part of the tractor frame so that the wheel stands vertical and parallel to the tractor's motion. A heavy weight fastened to one side of the wheel keeps that part of the wheel down, and a pointer

fastened to the tractor frame indicates on the wheel rim when the front of the tractor rises or falls.

To use the device, the operator sets his tractor and plow at some point where he wishes to run a level or contour line, say on a hillside about one foot higher than the bottom of the hollow. He then drives slowly but steadily along, turning slightly to the right or left, so as always to keep the pointer on the zero or level mark. The chief trouble with this device is the tendency for the weight to swing the wheel back and forth due to irregularities in the forward motion.

Guard For Poultry Feeder

A SIMPLE way to keep chickens from roosting on poultry feeders is shown in the diagram. Take empty Sinclair Lubricating Oil containers, punch a hole in each end just large enough to fit over an old auto brake rod long enough to reach the length of the feeder. Slip the proper number of cans over the rod, then fit it in slots cut in each end



of the feeder. When chickens light on top of the feeder, the cans revolve and they will soon leave it alone.

SINCLAIR men can give you practical information on the use of fuels and lubricants for farm machinery. Ask your Sinclair agent.

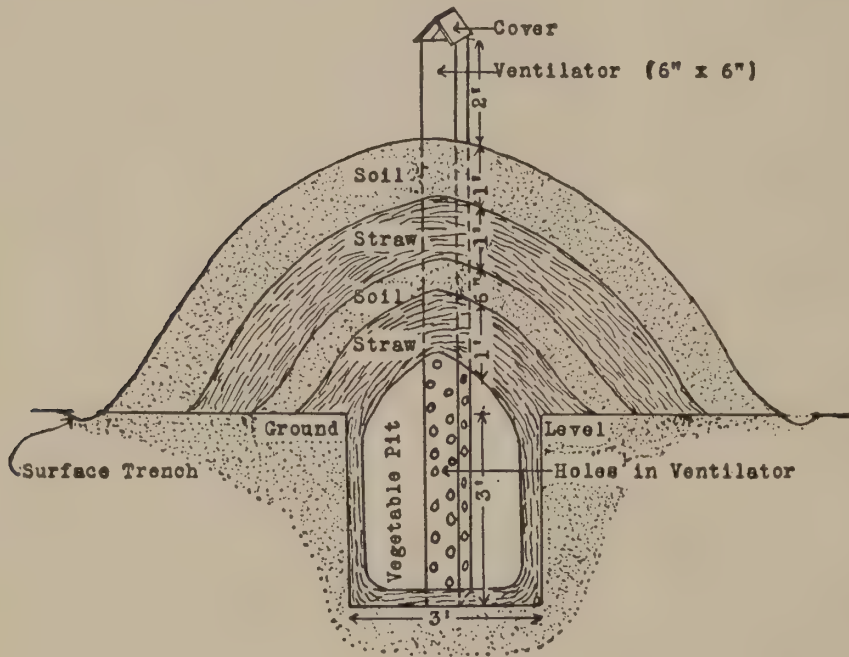
FARM STORAGE FOR

MANY vegetables can be stored on the farm for winter use or for sale to local markets. Three styles of storage space are shown here. The principal things to remember are:

Maintain temperature above freezing by insulation.

Moisture must be maintained sufficient to prevent shriveling.

Ventilation must be provided to remove excess moisture and to cool space quickly in the fall. Temperatures required by principal vegetables while in storage are between 32° and 40°F.

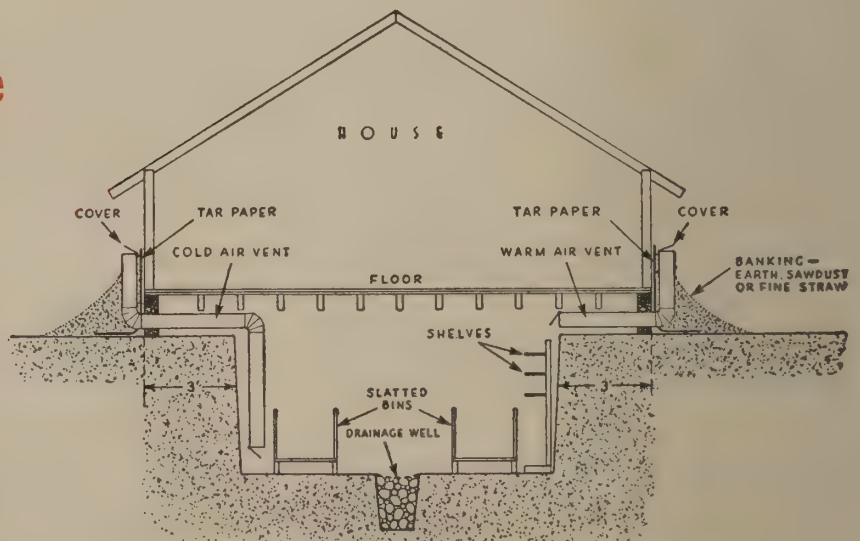


Pit Storage

USE an outside pit only when no other space is available. Using several pits is better than one large one. Cover with 1 foot straw in early fall and a cover to keep out rain. Add 6 in. soil when freezing weather starts. When colder add another foot of straw and a foot of soil.

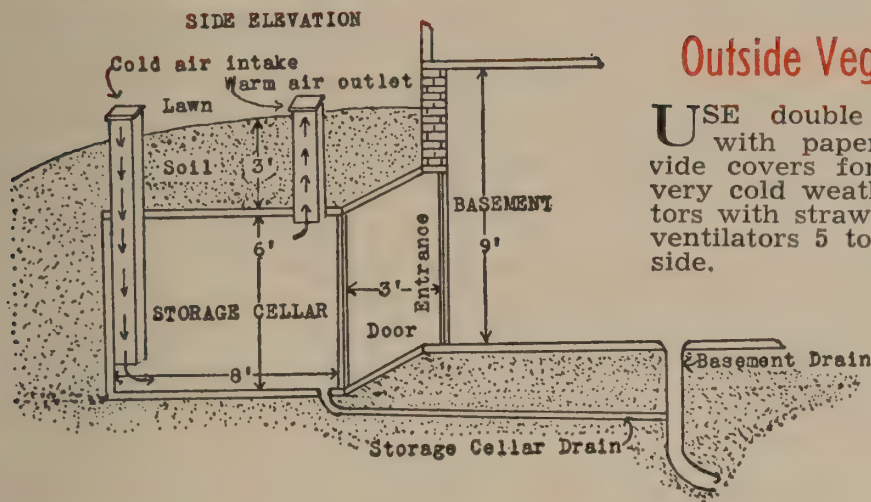
Unheated Cellar Storage

DIG excavation at least 3 feet inside foundation walls. Install cold and warm air ventilation flues with tight covers and well insulated. In extreme cold a kerosene lamp or bucket of live coals will usually prevent vegetables from freezing.



Bank the house foundation to protect from freezing

VEGETABLES



Outside Vegetable Cellar

USE double boarded doors with paper between. Provide covers for ventilators. In very cold weather stuff ventilators with straw or burlap. Make ventilators 5 to 6 in. square inside.

Storage Table for Vegetable Crops

Crop	Temperature °F.	Humidity	Air Circulation	Maximum Storage Period
		Per Cent		Months
COOL, MOIST, LITTLE AIR CIRCULATION:				
Beets.....	32-40	90-95	Little	4-5
Carrots.....	32-40	90-95	Little	4-5
Celeriac (Roots).....	32-40	90-95	Little	3-4
Celery.....	31-32	90-95	Little	3-5
Horseradish.....	32-40	90-95	Little	4-6
Kohlrabi.....	32-40	90-95	Little	2-3
Parsnip.....	32	90-95	Little	4-5
Rutabagas.....	32-40	90-95	Little	3-4
Salsify.....	32	90-95	Little	3-4
Turnip.....	32	90-95	Little	3-4
COOL, MODERATELY MOIST, LITTLE AIR CIRCULATION:				
Cabbage.....	32-40	90-95	Little	4-5
Apples.....	30-40	85-90	Little	1-7
Potato (Table Stock).....	36-40	85-90	Little	5-6
Potato (Seed Stock).....	32-36	85-90	Little	6-8
Popcorn.....	30-32	85-90	Moderate	Indefinitely
COOL, DRY, AMPLE AIR CIRCULATION:				
Onion.....	31-32	70-75	Ample	5
Garlic.....	32	70-75	Ample	5-6
Dry beans.....	30-32	70-75	Ample	Indefinitely
Dry peas.....	30-32	70-75	Ample	Indefinitely
WARM, MOIST, LITTLE AIR CIRCULATION:				
Tomatoes (Green).....	50-60	95-98	Little	1
Tomatoes (Ripe).....	40	95-98	Little	1/3
WARM, DRY, AMPLE AIR CIRCULATION:				
Squash.....	40-50	50-70	Ample	4-7
Pumpkin.....	40-50	50-70	Ample	3-4

University of Minnesota—Agricultural Extension Service U. S. Dept. of Agriculture

TIME SAVER HINTS FOR

WHEN paint brushes have become hardened and stiff through disuse, put some vinegar in an old can, put the brushes in and boil for about ten minutes. The brushes will come out soft and pliable.

If chamois becomes really stiff rinse in two quarts of lukewarm water to which one teaspoon of olive oil has been added. This will make it quite soft.

A few pieces of camphor put in the drawer where silver is kept will keep it from tarnishing.

To mend broken glass dishes melt a small quantity of pulverized alum in an old spoon. Before it hardens rub the alum over the pieces to be united, press them together and set aside to dry. They will not come apart even when washed with hot water. When mending broken china or glass you can keep the pieces together in position until the cement is set with adhesive tape. When the article is thoroughly dry carefully remove the tape.

Make your bags for table silver of unbleached flannel. Never wrap silver in bleached flannel. The sulphur used in bleaching flannel will tarnish silver.

To remove adhesive tape from your skin soften the tape with benzine, gasoline or lighter fluid. When soft it may be easily removed.

Ink spots on the fingers may be instantly removed with a little ammonia. Rinse the hands after washing with clear water. Equal parts of linseed oil and vinegar will efface ink stains on wood.

Before repainting door and window screens, clean them with gasoline or cleaners naphtha. It is more effective in removing dirt than water. The ready prepared screen paint, which is quite thin, can be more smoothly and quickly applied with a piece of carpet than with a brush. Cut a piece of heavy carpet about 5 in. square and place around the side of a piece of 2x4 cut the same length as the carpet.

Use Sinclair P. D. Insect Spray to rid your house of flies, mosquitoes, bugs and insects. It will go a long way in making living more comfortable and may prevent serious illness as many diseases are carried by insect pests.

WHEN you trim the shrubbery and fruit trees chop the brush into pieces suitable for kindling fires. Ordinarily it takes no more time than to pile and burn it or to haul it away, and it makes good kindling.

THE bottom step of basement stairs, or outdoor entrance, will be much easier to see in dim light if the edge of it is painted white. This simple precaution might prevent a serious injury.

Cold Weather Washday Hints

ADD a handful of salt to the rinse water to keep your clothes from freezing while you are hanging them out. Wet your hands in vinegar and let it dry on before going to hang up your clothes out of doors. Your hands won't get so cold.

It is a good idea to heat the clothes pins in the oven to keep your fingers warm while hanging out clothes in cold weather.

THE HOME

Removing Stains

GRASS Stains. When fresh, grass stains may be removed with alcohol. For old grass stains, use cream of tartar, or salts of lemon. These will lighten the tint of the stain. Wash with soapy water heated to boiling point. For delicate colors use ammonia and hot water. For white linen, rub lard on the spot when fresh, and wash with soapy hot water. For old stains use tartaric acid.

Fruit and Wine Stains. For white and fast-colored cottons, first rub the fabric with soap and cold water. Then touch the spot with a brush or feather dipped in chloride of soda, and dip immediately in cold water to prevent fabric from injury. Some stains may be removed by rubbing camphor on dry fabric and then washing. Where colored material is stained, use ammonia and borax. For linens, use glycerin, applying to the spotted portion and letting it remain several hours before washing. Wash with soap and hot water.

Tea and Coffee Stains. Soak in cold borax water. Then pour boiling water on stains. Fabric should be stretched as much as possible to permit hot water to pass through easily. Fabric may be stretched by fastening over large bowl or dishpan with clothespins. If stains are old, rub with lemon juice and salt, wash and hang in sun to bleach.

Iron Rust Stains. If fabric is white treat with oxalic acid, which may be secured at any drug store. Dissolve in warm water. Make the solution as strong as possible. Let it stand 24 hours before using, and if any crystals are left strain them out before using. Pour the liquid through the stain and then bleach in sun. As soon as spot disappears



wash the fabric in warm water to get rid of the acid.

Cocoa and Chocolate Stains. These may be removed by rubbing with kerosene and washing in cold water. Or they may be removed with borax, soap and water.

Oil and Grease Spots on Carpet. Place a clean piece of blotting paper over the spot, and on it put a hot flat iron, making sure that the iron is not hot enough to scorch the carpet. The blotting paper should be changed whenever it becomes greasy. After as much oil or grease as possible has been taken out by this method, rub whiting into the spot and let it remain for a day or two. Then brush clean.

Spots on clothing, car upholstery, rugs and fabrics can be easily and safely removed with Sinclair Spot Remover. Keep a bottle of it handy in your kitchen or laundry.

Paint Stains. These can usually be removed with turpentine or benzine. If material is delicate, use naphtha or chloroform. Take garment or fabric in open air and saturate stains with gasoline, sponging with clean piece of flannel until paint is removed, rub dry with clean cloth. On silk, turpentine may be used, allowing stained part to remain in turpentine for several hours.



This picture shows a small section of the laboratory's fly breeding cages.

PEST CONTROL

for Your HEALTH and COMFORT

No home is a safe living place where there are flies, mosquitoes, bugs and various other insect pests. Medical science says that such pests are among our worst enemies and that they carry disease, contaminate food, and are filthy to an extent which is seldom fully realized.

For many years Sinclair Refining Company has been manufacturing insecticides of the most efficient type. A unique scientific laboratory is maintained for testing them. In fact, the Sinclair Entomological Laboratory in East Chicago, Ind.—called the Sinclair Fly Farm—is considered one of the most modern and complete laboratories of its kind. Here many millions of flies, roaches and bugs of various kinds are bred to be used for actual tests of the killing strength of Sinclair P. D. and Sinclair Stock Spray.

The frequent use of P. D. Insect Spray will rid your home of insects and kill off the eggs and larvae. When used as directed on the container, it is absolutely harmless to humans and animals and will not stain clothing wallpaper or curtains.

THE HOUSE FLY

The common house fly is not only the most persistently annoying insect but also is one of the most dangerous pests known. It carries filth and disease germs with it everywhere. To kill flies close windows and doors and spray Sinclair P. D. Spray in an upward direction. In 10 to 15 minutes the flies will be dead or paralyzed and should be swept up and disposed of.



THE MOSQUITO



The well-known mosquito is a national nuisance causing untold discomfort and carrying various dangerous diseases ranging from malaria to sleeping sickness. To kill mosquitoes follow same procedure as for flies. Spray sleeping room before retiring and mosquitoes will not be troublesome.

THE BEDBUG



The bedbug is among the most loathsome of all domestic insect pests—a parasite attacking humans and other warm-blooded creatures. To get rid of bedbugs, a complete spraying of springs, slats and other parts of beds and also the mattresses is necessary. Get the insecticide into seams, bindings and tufts. Spray behind baseboards, under window sills, back of mouldings, and under loose wallpaper.

THE COCKROACH



The roach is an unclean and destructive pest and is believed to carry germs of many human diseases. To rid rooms of roaches spray Sinclair P. D. into crevices and cracks, also around water pipes and drainboards, and back of radiators and baseboards.

THE ANT



The ant is the raider among insects, and a very annoying household pest. To get rid of ants, first find where ants have entered or nested. Spray these spots and ant runways liberally and repeatedly with Sinclair P. D. Spray. Regular spraying will drive the pests away. Do not spray P. D. on grass, plants, shrubs, etc.

PROTECTING CATTLE

STABLE FLIES—HORN FLIES. Farmers know the loss caused by the ravages of these blood-sucking pests among cattle. Sinclair Stock Spray repels and kills these vicious biters. Use it for spraying your stock, being sure to follow directions.

**SINCLAIR
STOCK
SPRAY**

**Sinclair P. D. Insect Spray
Rates "Grade AA"**

**SINCLAIR
P. D.
Reg. U. S. Pat. Off.
INSECT
SPRAY**

FIRST AID

What to do until the Doctor comes

The "Ten Commandments" of First Aid

For all serious injuries there is only one rule—call a doctor. When you call be sure to give him as much information as possible: the kind of injury you think it is, exactly where the patient is located, and how to get there if the place is unfamiliar to the doctor. Keep cool yourself. Do not excite the patient.

1. Call or send for a doctor immediately.
2. Be sure victim is kept lying down.
3. Attend to serious bleeding at once.
4. Examine for less obvious injuries.
5. See that injured person is kept warm and comfortable.
6. If victim is unconscious never give liquid.
7. Keep crowd away.
8. Try to cheer victim up—talk quietly and try to gain his confidence.
9. Don't let him see his injury.
10. If a stranger, get his name and address if possible.

SHOCK

Any injured person may suffer from physical or nervous shock. It may be even more serious than the injury itself and may even cause death.

Symptoms: Skin is cold and clammy, face is pale and covered with beads of sweat, eyes are wide open and staring, pulse is weak and rapid.

Treatment: Examine for bleeding. Lay patient on back. Loosen clothing. Wrap in blankets and keep

warm. Keep head low. Rub arms and legs toward body. Turn head to one side if he starts to vomit. Have him breathe aromatic spirits of ammonia. Don't move unless absolutely necessary, and give hot coffee, tea or water if able to answer questions.

SUNSTROKE

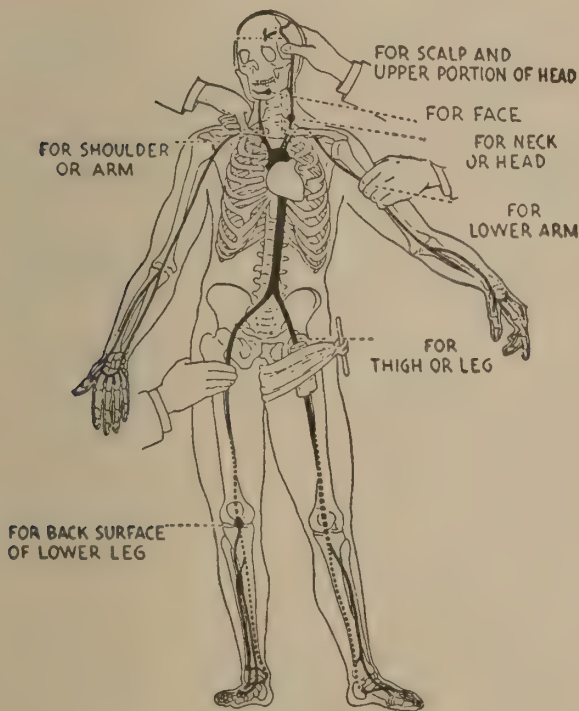
Symptoms: Skin hot and dry, face red, shooting headache, delirious.

Treatment: Remove to shade, undress to underwear, apply cloths

wrung out of cold water to the body, or gently spray water on clothing, put ice on head, give cold (not ice) water, place in semi-sitting position. If victim shivers, apply external heat. If temperature rises again, renew cold applications.

BLEEDING

Do not cover a wound until the bleeding has stopped. Bleeding from veins is steady; from arteries, spurt-ing. Usually a pad held firmly and directly over wound will stop vein bleeding—except veins in neck, for which apply pressure with thumb above the wound close to the wind-pipe and toward the backbone. If surface is slippery, use folded gauze under thumb.



For artery bleeding, apply pressure as indicated in above drawing. You should feel the pulse in every case, otherwise you are not pressing the artery. Pressure should be just sufficient to stop pulsation, but not too hard. When a tourniquet is used, release it momentarily every 15 minutes to prevent gangrene condition to develop.

HEAT EXHAUSTION

Symptoms: Skin cold and clammy, face pale, dull headache, dizzy feeling, may vomit.

Treatment: Remove to circulating air, loosen clothing, keep warm with blankets, give hot coffee or salt—one teaspoonful to a glass of water, lay flat on back with head low, call doctor.

SPRAINS AND BRUISES

Sprains occur at joints only—usually at ankles. Place patient on back and remove shoe gently. Apply ice-cold packs until doctor prescribes other treatment.

Cold applications help to keep down swelling and discoloration of bruises. Later, hot applications help recovery.

WOUNDS

First stop the bleeding. Apply mercurochrome, 2 per cent iodine or other mild antiseptic. Cover with sterile pad or bandage and hold in place with adhesive tape. Do not put adhesive tape directly on wound. Call doctor to clean out any splinters or foreign substances or if swelling or pain occurs.

BURNS

Burns from acids, caustics or other chemicals must be immediately washed freely with running water.

Do NOT put water on burns caused by fire, friction or hot liquids. Remove clothing over burn if it does not stick. Cover with clean cloth soaked in slightly warm baking soda solution (2 or 3 heaping tablespoonfuls of soda to one quart of water). Bandage lightly and cover to keep warm. Do not use oils as they often interfere with doctor's treatment. Do not open blisters.

ARTIFICIAL RESPIRATION



Speed is imperative. Start artificial respiration at once. Do not take time to call a doctor—send someone else. A minute's delay might mean the death of the victim. Lay the victim on his belly, one arm extended directly overhead, the other bent at elbow, with face turned outward and resting on hand or forearm, so that nose and mouth are free for breathing. Kneel, straddling the victim's legs between his knees and thighs with your knees placed at such a distance from the hip bones as will allow you to assume the FIGURE ONE position. Place palms of hand on small of back with fingers resting on ribs, little finger just touching lowest rib, with thumb and fingers in a natural position and tips of fingers just out of sight.



With arms held straight, swing forward slowly so the weight of your body is gradually brought to bear on victim. Your eyes should be directly over your thumbs at end of forward swing. Do not bend elbows. This should take about two seconds.



Now immediately swing backward, removing hands smoothly but quickly, to remove pressure completely, returning to position shown above. After two seconds, swing forward again. Repeat rhythmically 12 to 15 times a minute the double movement of compression and release, a complete respiration in four or five seconds. Continue without interruption until natural breathing is restored, if necessary, four hours or longer or until a physician declares patient is dead or until stiffening of the body sets in.

As soon as artificial respiration has been started and while it is being continued, an assistant should loosen tight clothing about patient's neck, chest or waist. Keep patient warm

with blankets, hot water bottles or other artificial heat available. Do not give liquids by mouth until patient is fully conscious.

To top of next page

To avoid strain on the heart when the patient revives, he **must** be kept lying down. If doctor has not arrived by the time patient has revived, he should be given some stimulant, such as a hot drink of coffee or tea. Never give alcohol in any form. Patient should be kept warm and quiet.

Resuscitation should be carried on as near as possible to place where victim received injuries. Do not move from point of resuscitation un-

til he is breathing normally and then only in a lying position. If necessary to move sooner, do not interrupt resuscitation.

A brief return of natural respiration is not a certain indication for stopping resuscitation. The patient must be watched and if natural breathing stops, artificial respiration should be resumed at once.

When changing operators during resuscitation the rhythm of respiration should not be changed.

POISONS

There are four important things to be done quickly in practically every case of poisoning:

1. Empty the stomach of poison as quickly as possible;
2. Dilute the poison;
3. Neutralize what cannot be removed;
4. Counteract the depressing effects of the poison.

Do not administer a purgative or laxative.

The stomach may be emptied out by having the patient drink one or two glasses of lukewarm water and then inducing vomiting by tickling throat with feather or finger. Or an emetic may be given, as for example: a tablespoonful of salt to a glass of warm water, followed by plenty of warm water; a teaspoonful of mustard in half a glass of warm water; a glassful of dishwater or soap suds (use any ordinary soap); 30 grains of powdered ipecac, or two tablespoonfuls of syrup of ipecac in half a glass of water. Repeatedly induce vomiting until fluid comes back as clear as when given.

Caution: If the patient has swallowed a corrosive poison, do not make him vomit. There is danger of causing more serious injury to an already damaged stomach or gullet. **Corrosives** destroy the tissue with which they come in contact. They produce a severe burning pain in the throat, gullet and stomach. Included in this group are acids (such as carbolic, sulphuric, nitric and concentrated hydrochloric) and caustics (such as lye, caustic soda and chloride of lime).

To neutralize poisons which cannot be removed, antidotes (substances which stop further action and counteract their harmful effect) are listed below:

Special Poisons and Antidotes

Acids—Muriatic, Oxalic, Acetic, Sulphuric (oil of Vitrol), Nitric (Aqua Fortis).

Antidotes—Soap-suds, magnesia, lime-water.

Prussic Acid

Antidotes—Ammonia in water. Dash water in face.

Carbolic Acid

Antidotes—Flour and water, mucilaginous drinks.

Alkalies—Potash, Lye, Hartshorn, Ammonia.

Antidotes—Vinegar or Lemon juice in water.

Arsenic—Rat Poison, Paris Green.

Antidotes—Milk, raw egg, sweet oil, lime water, flour and water.

Bug Poison—Lead, Saltpeter, Corrosive Sublimate, Sugar of Lead, Blue Vitriol.

Antidotes—Whites of eggs, or milk in large doses.

Chloroform—Chloral, Ether.

Antidotes—Dash Cold Water on Head and Chest. Artificial Respiration.

Carbonate of Soda—Copperas, Cobalt.

Antidotes—Soap-suds and mucilaginous drinks.

Iodine—Antimony, Tartar Emetic.

Antidotes—Starch and water, astringent fusions, strong tea.

Mercury and its Salts.

Antidotes—Whites of eggs, milks, mucilages.

Opium—Morphine, Laudanum, Paregoric, Soothing Powders or Syrups.

Antidotes—Strong coffee, hot bath. Keep awake and moving at any cost.

Nitrate of Silver—Lunar Caustic.

Antidotes—Salt and water.

Strychnine—Tinc. of Nux Vomica.

Antidotes—Mustard and water. Sulphate of Zinc. Absolute quiet, plug the ears.

WEIGHTS AND MEASUREMENTS

MEASURES OF LENGTH

12 Inches.....	1 Foot
3 Feet.....	1 Yard
5½ Yards.....	1 Rod
320 Rods.....	1 Mile
5,280 Feet.....	1 Mile

MEASURES OF SURFACE

144 Sq. Inches.....	1 Sq. Foot
9 Sq. Feet.....	1 Sq. Yard
30¼ Sq. Yards.....	1 Sq. Rod
160 Sq. Rods.....	1 Acre
640 Acres.....	1 Sq. Mile
43,560 Sq. Feet.....	1 Acre

MEASURE OF SOLIDARITY

1,728 Cubic Inches....	1 Cubic Foot
27 Cubic Feet.....	1 Cubic Yard
231 Cubic Inches....	1 Gallon
2150.42 Cubic Inches....	1 Bushel
128 Cubic Feet.....	1 Cord

GLOBES AND CIRCLES

To find the diameter of a circle multiply circumference by 0.31831.

To find circumference of a circle multiply diameter by 3.1416.

To find area of a circle multiply square of diameter by 0.7854.

To find surface of a ball multiply square of diameter by 3.1416.

To find side of an equal square multiply diameter by 0.8862.

To find cubic inches in a ball multiply cube of diameter by 0.5236.

LIQUID MEASURE

4 Gills.....	1 Pint
2 Pints.....	1 Quart
4 Quarts.....	1 Gallon
231 Cubic Inches.....	1 Gallon
7½ Gallons.....	1 Cubic Foot
31½ Gallons.....	1 Barrel
54 Gallons.....	1 Hogshead

DRY MEASURE

2 Pints.....	1 Quart
8 Quarts.....	1 Peck
4 Pecks.....	1 Bushel
1 Bushel contains 2150.42 cubic inches or approximately 1¼ cubic feet.	

To measure wood . . . Multiply the length, height and width in feet together and divide by 128. This gives you the number of cords in the pile.

MISCELLANEOUS TABLES

196 lbs. flour make 1 bbl.
200 lbs. beef or pork make 1 bbl.
135 lbs. potatoes make 1 bbl.
135 lbs. apples make 1 bbl.
280 lbs. salt make 1 bbl.
350 lbs. sugar make 1 bbl.
100 lbs. nails make a keg.
1 gal. water about 8 1-3 lbs.
1 gal. milk about 8 3-5 lbs.
1 gal. kerosene about 6 1-2 lbs.
1 cu. ft. water about 62 1-2 lbs.
1-3 in. equals 1 size in measuring boots and shoes.
4 in. equals 1 hand in measuring horses.
480 lbs. makes 1 bale cotton.
A barrel of cement contains 4 cubic feet.
42 gal. in 1 barrel oil.
1 bushel coal weighs approx. 80 lbs.

CAPACITY OF A SILO

To find capacity of a silo, multiply one-half the diameter, or one-half the width across, by the same figure, then by 3.1416, and this product by the height of the silo. If the measurements are in feet, this will give the number of cubic feet in the silo. Multiply the number of cubic feet, by 35 (the average number of pounds of silage to the cubic foot) and divide by 2,000 to determine the number of tons.

SURVEYOR'S LINEAR MEASURE

7.92 Inches.....	1 Link
100 Links.....	1 Chain
80 Chains.....	1 Mile
Gunter's Chain is the unit and is 66 feet long.	

SURVEYOR'S SQUARE MEASURE

10,000 Sq. Links.....	1 Sq. Chain
10 Sq. Chains.....	1 Acre
10 Chains Sq.....	10 Acres

LAND MEASURE

To find the number of acres in a body of land, multiply the length by the width (in rods) and divide the product by 160. When the opposite sides are unequal, add them, and take half the sum for the main length or width.

An acre contains 4,840 square yards, or 43,560 square feet. A square acre measures 208.71 feet on each side.

U. S. GOVERNMENT LAND MEASURE

A township—36 sections, each a mile square.

A section—640 acres.

A quarter section, half a mile square—160 acres.

A quick way to measure height of tree or building . . . Drive a pole of known length into the ground near the object to be measured. When the length of shadow equals the length of the pole, the height of the tree or building equals the length of its shadow.

Measuring corn in the crib . . . Multiply the length, width and height in feet. Then multiply this figure by .45, which will give you approximately the number of bushels in the crib.

To calculate water capacity . . . For a rectangular cistern or tank, multiply height, depth and width in feet; then multiply this figure by 7.5. This will give you capacity in gallons of water. If the tank or cistern is circular, multiply the depth in feet by $\frac{1}{2}$ the diameter squared, also in feet. (That is, if the diameter is 6 feet, $\frac{1}{2}$ the diameter equals 3 feet, and 3 squared equals 9.) Then multiply this total by 3.14 and multiply by 7.5. This gives you the capacity in gallons.

Example

How many gallons will a tank 8 feet in diameter by 6 feet deep hold?

$$\frac{1}{2} \text{ of } 8 = 4$$

$$4 \text{ squared} = 16$$

$$16 \times 6 = 96.$$

$$96 \times 3.14 = 301.44 \text{ cubic feet}$$

$$301.44 \times 7.5 = 2260.8 \text{ gallons.}$$

Weight of Milk and Cream . . . One gallon of milk at 68° F., and containing 3% butterfat weighs 8.6 lbs. A gallon of cream with 28% butterfat weighs 8.37 lbs. Weight decreases slightly as butterfat increases.

INTEREST TABLE

To find the interest on a given sum, for any number of days at any rate of interest:

At 3 per cent, multiply the principal

by the number of days and divide by 120

At 4 per cent, as above and divide by 90

At 5 per cent, as above and divide by 72

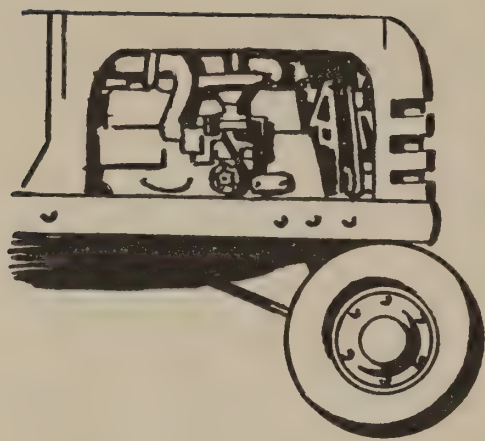
At 6 per cent, as above and divide by 60

At 7 per cent, as above and divide by 52

BREEDER'S CALENDAR

Periods of pregnancy for various farm Animals

Date of Service	Mares 340 Days	Cows 283 Days	Ewes 150 Days	Sows 112 Days
Jan... 1	Dec... 6	Oct... 10	May... 30	April... 22
" 6	" 11	" 15	June... 4	" 27
" 11	" 16	" 20	" 9	May... 2
" 16	" 21	" 25	" 14	" 7
" 21	" 26	" 30	" 19	" 12
Jan... 26	Dec... 31	Nov... 4	June... 24	May... 17
" 31	Jan... 5	" 9	" 29	" 22
Feb... 5	" 10	" 14	July... 4	" 27
" 10	" 15	" 19	" 9	June... 1
" 15	" 20	" 24	" 14	" 6
Feb... 20	Jan... 25	Nov... 29	July... 19	June... 11
" 25	" 30	Dec... 4	" 24	" 16
Mar... 2	Feb... 4	" 9	" 29	" 21
" 7	" 9	" 14	Aug... 3	" 26
" 12	" 14	" 19	" 8	July... 1
Mar... 17	Feb... 19	Dec... 24	Aug... 13	July... 6
" 22	" 24	" 29	" 18	" 11
" 27	Mar... 1	Jan... 3	" 23	" 16
April... 1	" 6	" 8	" 28	" 21
" 6	" 11	" 13	Sept... 2	" 26
April... 11	Mar... 16	Jan... 18	Sept... 7	July... 31
" 16	" 21	" 23	" 12	Aug... 5
" 21	" 26	" 28	" 17	" 10
" 26	" 31	Feb... 2	" 22	" 15
May... 1	April... 5	" 7	" 27	" 20
May... 6	April... 10	Feb... 12	Oct... 2	Aug... 25
" 11	" 15	" 17	" 7	" 30
" 16	" 20	" 22	" 12	Sept... 4
" 21	" 25	" 27	" 17	" 9
" 26	" 30	Mar... 4	" 22	" 14
May... 31	May... 5	Mar... 9	Oct... 27	Sept... 19
June... 5	" 10	" 14	Nov... 1	" 24
" 10	" 15	" 19	" 6	" 29
" 15	" 20	" 24	" 11	Oct... 4
" 20	" 25	" 29	" 16	" 9
June... 25	May... 30	April... 3	Nov... 21	Oct... 14
" 30	June... 4	" 8	" 26	" 19
July... 5	" 9	" 13	Dec... 1	" 24
" 10	" 14	" 18	" 6	" 29
" 15	" 19	" 23	" 11	Nov... 3
July... 20	June... 24	April... 28	Dec... 16	Nov... 8
" 25	" 29	May... 3	" 21	" 13
" 30	July... 4	" 8	" 26	" 18
Aug... 4	" 9	" 13	" 31	" 23
" 9	" 14	" 18	Jan... 5	" 28
Aug... 14	July... 19	May... 23	Jan... 10	Dec... 3
" 19	" 24	" 28	" 15	" 8
" 24	" 29	June... 2	" 20	" 13
" 29	Aug... 3	" 7	" 25	" 18
Sept... 3	" 8	" 12	" 30	" 23
Sept... 8	Aug... 13	June... 17	Feb... 4	Dec... 28
" 13	" 18	" 22	" 9	Jan... 2
" 18	" 23	" 27	" 14	" 7
" 23	" 28	July... 2	" 19	" 12
" 28	Sept... 2	" 7	" 24	" 17
Oct... 3	Sept... 7	July... 12	Mar... 1	Jan... 22
" 8	" 12	" 17	" 6	" 27
" 13	" 17	" 22	" 11	Feb... 1
" 18	" 22	" 27	" 16	" 6
" 23	" 27	Aug... 1	" 21	" 11
Oct... 28	Oct... 2	Aug... 6	Mar... 26	Feb... 16
Nov... 2	" 7	" 11	" 31	" 21
" 7	" 12	" 16	April... 5	" 26
" 12	" 17	" 21	" 10	Mar... 3
" 17	" 22	" 26	" 15	" 8
Nov... 22	Oct... 27	Aug... 31	April... 20	Mar... 13
" 27	Nov... 1	Sept... 5	" 25	" 18
Dec... 2	" 6	" 10	" 30	" 23
" 7	" 11	" 15	May... 5	" 28
" 12	" 16	" 20	" 10	April... 2
Dec... 17	Nov... 21	Sept... 25	May... 15	April... 7
" 22	" 26	" 30	" 20	" 12
" 27	Dec... 1	Oct... 5	" 25	" 17
" 31	" 5	" 9	" 29	" 21



SINCLAIR

TRACTOR

THE FARM TRACTOR

Because the tractor is the principal power unit on the farm, its lubrication has been given considerable attention. In order to cover the entire field, Sinclair has prepared tractor charts on most makes and models, showing in detail the proper lubrication of each one. While the principle of lubrication of tractors generally is the same, individual charts are necessary as the application of the various lubricants needed varies according to the make and model of the tractor. For that reason, time nor space here do not permit detailed instructions on the lubrication of tractors.

Sinclair will be glad to furnish you without cost an individual chart for the make and model of the tractor you own and operate. You will find this chart prepared in accord-

ance with the manufacturer's recommendations for the proper lubrication of your tractor. Follow the chart carefully for best results. Ask for one! They are free.

During the busy season while the tractor is constantly in use, there is a strong inclination to neglect to lubricate vital parts that need the proper lubricant applied daily. Comparatively speaking, there are few points on the tractor to lubricate, but what there are must receive attention as recommended by the manufacturer in the amounts prescribed, and at the proper intervals.

Take the few minutes required daily and lubricate your tractor so that you may enjoy its usefulness for a longer period of time. You will avoid having to replace expensive parts and have costly repairs performed before they would otherwise normally be due.

KEEPING YOUR TRACTOR OPERATING SATISFACTORILY

Your tractor is a rugged piece of machinery because it is built for rough work. But it is also a piece of machinery with many precision parts that require the best of care to insure long, efficient, trouble-free operation.

If your tractor is not in good mechanical condition, by all means have an overhaul job done. Take it to your tractor dealer's service department and have it properly reconditioned. That is the cheapest, best and safest procedure.

MAINTENANCE

Guide

If your tractor is in good operating condition there still remain many adjustments and attentions—some of them almost daily requirements—which you can take care of yourself.

You probably are familiar with them and intend to look after them. But oftentimes something happens to bring about neglect—and neglect can be both troublesome and costly.

So, these suggestions are offered as worth-while reminders:

Use the right type of spark plugs—cold type plugs with gasoline or hot type plugs with distillate.

Use the proper manifold setting according to the fuel you use.

Clean and adjust spark plugs and ignition points regularly.

See that valves are kept in proper adjustment, and oil the valve rocker arm assembly regularly.

Keep carburetor properly adjusted.

When working in very dusty conditions clean air filter twice daily. Ordinarily, cleaning of air filter is almost a daily job.

Keep crank case breather caps clean.

Keep fan belt tight at all times.

Allow tractor to warm up before putting it to work. This insures proper flow of oil to bearings.

Keep all nuts and bolts tight.

Keep tires inflated to manufacturer's recommended pressures.

Regular attention to these requirements will assure continuance of good performance from a tractor.

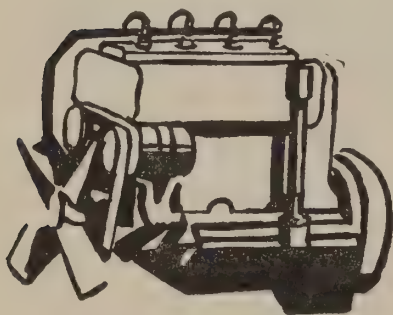
LUBRICATING THE TRACTOR

Experience has demonstrated that nothing can add so much to tractor (or other farm machinery) life as careful attention to lubrication. The **correct** lubricants in the right places assure top operating performance and also reduces breakdown from wear.

MOTOR LUBRICATION

This, of course, is the most important lubrication in tractor operation. It is a wise precaution to check the oil level every time you start out with your tractor.

Your "guess" that the oil level is O. K. **might** be wrong—and one wrong guess like that could be very expensive. Something unforeseen may have reduced the amount of oil in the crankcase.



So, don't take chances with oil. The Sinclair Lubrication Chart for your tractor indicates when the oil should be changed. If the end of the

testing "stick" shows the oil to be extremely dirty, an oil change is needed. It doesn't pay to risk sludge formation when it's easily avoided.

Sludge obstructs oil flow, damages bearings, pistons and rings, causes waste of fuel and reduces power.

Drain out this dirty old oil. Then thoroughly flush out crankcase and refill with new oil. The flushing operation is important. It picks up and carries away bits of metal, grit and dirt as well as sludge.

In refilling, use only high quality oil. It is more economical in various ways. We recommend Sinclair Pennsylvania or Opaline Motor Oil because they have been carefully refined to stand up under all conditions of tractor operation.

Be sure to use the right S.A.E. grade for conditions under which you are working. Refer to your tractor instructions to be sure.

OIL FILTER

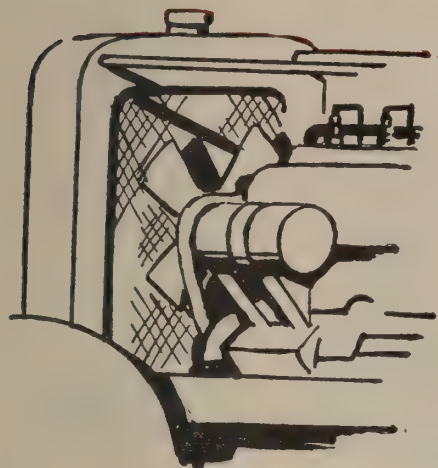
Most modern tractors are equipped with the replaceable cartridge type oil filter. This is a principal means of keeping the oil clean after it has been placed in the crankcase. It removes carbon, dirt, metal particles and other foreign substances as they accumulate, and helps to prevent formation of sludge. It becomes clogged and should be replaced periodically to keep the oil clean. (See tractor manufacturer's recommendation about replacement.) Excessive wear, increased oil and fuel consumption, valve and ring troubles, and loss of power result from neglecting filter replacement. If filter is not replaceable, remove and clean with kerosene.



GREASING

Grease every required place regularly. Remember, just one place neglected may cause stalling and worse trouble. Keep a record of your working hours to be sure of lubrication at the right period. Follow the Sinclair Lubrication Chart for your make and model of tractor and you can be certain that your tractor is properly lubricated.

WATCH TRACTOR COOLING SYSTEM



Next to lubrication, the cooling system is of utmost importance. Keep the water at the proper level in the radiator. Use soft water . . . clean rain water is excellent. Be sure the water pump works properly. Clean outside of the radiator to remove bugs or dirt. Look at the fan belt to see that it does not slip or bind. In cold weather, protect your cooling system with ample Sinclair Anti-Freeze.

CARE OF TRACTOR TIRES

For best tire service check air pressure every week using a low pressure gauge with graduations of one pound. The following schedule of simplified inflation pressures were adopted by the Tire & Rim Association:

Front tires—all sizes, 4-ply...28 lbs.
6-ply...36 lbs.

Rear tires—all sizes, 12 lbs. minimum

Increase pressure of furrow tire by 4 pounds when plowing.

When special heavy wheels are used, or heavy implements are carried on the tractor inflation pressure must be increased. Your Tractor and Implement Dealer can give you the proper air pressure recommendations for the tires on the trac-

tors he sells.

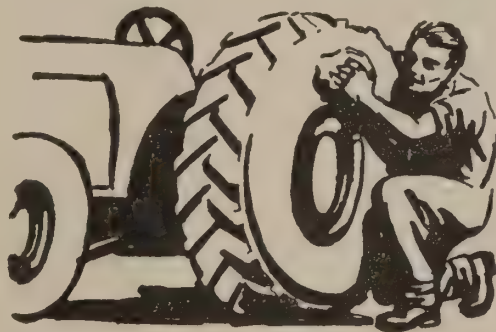
Protect tires from the elements. Keep shaded from hot sun when not in use. Jack up tractor when not used for long periods.

Grease and oil are harmful to tires, always wipe them off at once.

Wash off with cold water any spraying chemicals settling on tires.

Take care of cuts, bruises, and breaks as soon as discovered. Inspect valves frequently and keep extra caps in your tool box to replace lost ones.

If water is used in tires, be sure it is protected in freezing weather with calcium chloride or other recommended anti-freeze.



**SINCLAIR
OPALINE**
Reg.
U. S. Pat. Off.
**MOTOR
OIL**

Sinclair Pennsylvania and Opaline Motor Oils are dewaxed and de-jellied. They last so long they save you money.

**SINCLAIR
PENNSYLVANIA**
**MOTOR
OIL**

SAFE TRACTOR OPERATION



Operate your tractor safely to prevent injury to the machine and to yourself. Here are some good practices:

- 1.** Be sure the gear shift lever is in neutral before cranking the engine.
- 2.** Always engage the clutch gently, especially when going up hill or pulling out of a ditch.
- 3.** When driving on highways, or to and from fields, be sure that both wheels are braked simultaneously when making an emergency stop.
- 4.** Always ride on seat or stand on platform of tractor. Never ride on drawbar of tractor or drawn implement.
- 5.** When tractor is hitched to a stump or heavy load, always hitch to drawbar and never take up the slack of chain with a jerk.
- 6.** Be extra careful when working on hillsides. Watch out for holes or ditches into which a wheel may drop and cause tractor to overturn.
- 7.** When going down steep hills or grades, always keep the tractor in gear.
- 8.** Always drive tractor at speeds slow enough to insure safety, especially over rough ground or near ditches.
- 9.** Reduce speed before making a turn or applying brakes. The hazard of overturning the tractor increases four times when speed is doubled.
- 10.** Always stop power take-off before dismounting from tractor.
- 11.** Never dismount from tractor when it is in motion. Wait until it stops.
- 12.** Never permit persons other than the driver to ride on tractor when it is in operation.
- 13.** Never stand between tractor and drawn implement when hitching. Use an iron hook to handle drawbar.
- 14.** Do not put on or remove belt from belt pulley while the pulley is in motion.
- 15.** Should engine overheat, be careful when refilling radiator.
- 16.** Never refuel tractor while engine is running or extremely hot.
- 17.** When tractor is attached to a power implement, be sure that all power line shielding is in place.

Remember A CAREFUL OPERATOR always is the BEST INSURANCE against an ACCIDENT !

STORING YOUR TRACTOR

If you do not keep your tractor in various uses during the winter months be as particular as you would be with a fine automobile when it comes to housing, cleaning, and protection against the elements. Remember, the modern tractor is a precision-built machine.

Here are twenty suggestions that will help you store your tractor safely during winter months:

- 1.** If possible store in a dry place, where it will be protected from the elements. If left outdoors cover with canvas or building paper.
- 2.** Remove all dirt and grease. Sandpaper or rub with a wire brush all scratches or bare spots to remove rust. Then paint.
- 3.** Tighten and renew all bolts, nuts, and screws that are loose or missing.
- 4.** Drain radiator and engine block. Leave drain cocks open, run engine a few minutes after draining to remove water from pockets. Some feel it is better to protect against freezing by adding sufficient anti-freeze in the radiator.
- 5.** Remove spark plugs and squirt light oil into combustion chamber and on valves. Adjust spark plug gaps to correct spacing and replace in engine.
- 6.** Remove valve cover and clean valve springs and case with stiff brush and solvent. After cleaning, squirt or brush light oil on valve springs, valve stems and rocker arms. Replace cover. If gaskets are bad, renew.
- 7.** Drain and refill crank case with new oil. Run engine a few minutes to circulate oil to all working parts.
- 8.** Check transmission lubricant. If it has not been changed recently, drain, flush and refill with fresh lubricant.
- 9.** Check differential and power take-off. If lubricant has not been changed recently, drain, flush and refill with fresh lubricant.
- 10.** Clean and refill all grease cups, screw down to force old grease and grit from bearings, wipe off excess grease with cloth (never use waste) for cleaning machinery.
- 11.** If Zerk or Alemite fittings, use grease gun to force out old grease and grit, wipe off excess grease with cloth. Always keep your grease gun clean and free from grit.
- 12.** Remove battery and store where it will be protected from freezing weather. The battery should be recharged periodically and kept up to electrical level.
- 13.** Clean air cleaner and refill with new oil. Never use crank case drainings. If water type, drain off water.
- 14.** Plug exhaust pipe and breather openings with clean rags. This will keep out dust, moisture and mud while not in use.
- 15.** Drain the entire fuel system, fuel tank, lines, and carburetor. Leave drain cocks open, but be sure to replace fuel tank cap and replace fuel lines.
- 16.** If tractor is equipped with rubber tires, jack it up, or, if this is not possible, increase the air pressure a few pounds, front and rear, to allow for leakage in storage.

17. If water is used in tires, be sure to protect tires from freezing with the addition of calcium chloride. Consult your tire dealer.
18. Hand crank the motor a few times a month during storage. This will redistribute the oil to parts where oil has drained off.
19. BEFORE TAKING TRACTOR OUT OF STORAGE to put in operation, check crank case, transmission and differential for water accumulation.
20. Be sure to recheck your tractor for water, oil, fuel, battery and see that all drain cocks are closed and all drain plugs are replaced in crank case, transmission, and differential before putting into operation. Do not forget to remove rags from exhaust pipe and breather openings.

THE FARM TRUCK

The lubrication of your truck is important for longer life, economy, and efficient operation. Similar to the tractor, the principle of lubricating trucks of all makes is substantially the same. Individual makes require different application of lubricants and at different intervals of such application, so Sinclair has prepared and offers without cost an individual chart for your make and size of truck. The important thing is to lubricate your truck as often and as completely as the instructions provide. Let the Sinclair Agent guide you in the application of the proper lubricant at the right time and place. A premature failure

caused by lack of lubrication of either your tractor or truck may cost you a great deal more than the actual replacement parts and repair bills.

Your truck, very much like your tractor in the busy season, must perform properly when you need it. Perishable farm products must be gathered and trucked to the market in time if top prices are to be realized. Other farm products must be moved on schedule, or costly delays are encountered.



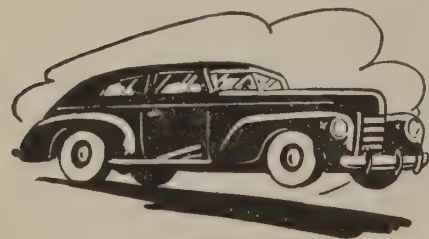
THE FARM CAR

The farm automobile often does not receive the regular attention necessary, although its lubrication requirements are just as important for long life and efficient operation as any other piece of machinery on the farm. The initial cost of the automobile is ordinarily higher than other machinery. Therefore, it is of vital importance that it be regularly and properly lubricated with the

best quality products. If you are unable to take your car to a Sinclair dealer at regular intervals, where ade-

quate facilities are available to thoroughly lubricate and service your car, the Sinclair Agent will guide you in the proper lubrication of it. He can tell you what lubricants to use and how often to apply them. Upon his next visit to your farm, be sure to give him sufficient time to cover this important subject with you.

The important thing to do is to see that your car gets the same careful frequent attention so vitally important to insure long life, efficient and economical operation, as is accorded the city owned car, where convenient facilities constantly remind the owner of services required.



LUBRICATION OF FARM IMPLEMENTS

The lubrication of farm implements covers a wide field, because today there are many and varied units of equipment necessary in the efficient operation of the farm. The ingenuity of farm implement manufacturers and inventors in their effort to create machines to do things more quickly at less cost and with less labor is beyond parallel in American history.

Many farmers possess such improved implements as the COMBINE, HAY BALER, CORN PICKER, etc.

Too much emphasis cannot be placed upon the matter of oil selection.

High grade oil of the body suited to the requirements of your equipment is the most important single item in economical operation, yet it is the cheapest item of operating cost.

Select your oil on quality and suitability—never on price—for no one thing is so sure to bring about unsatisfactory performance and unnecessary expense as incorrect lubrication.

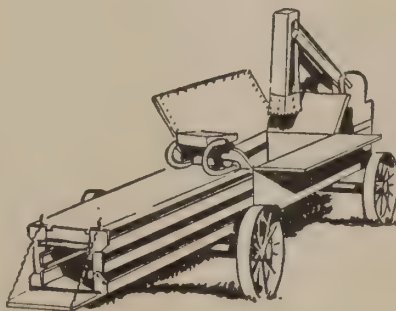
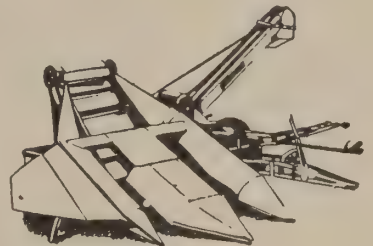
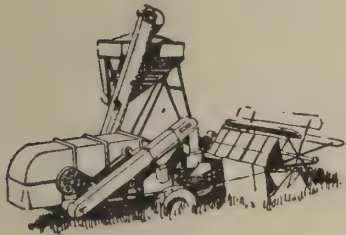
For engine lubrication, and all points requiring a motor oil, use Sinclair Pennsylvania or Opaline Motor Oil, whichever you prefer, of the proper S.A.E. grade.

For all points provided with pressure fittings,

use Sinclair Chassis Lubricant or Sinclair Pressure System Grease. For all enclosed gears use Sinclair Opaline Gear Lubricant of the proper S.A.E. grade. For all points equipped with pressure cup fittings, use Sinclair Pressure System Grease or Sinclair No. 3 Cup Grease. For water pump on engine use Sinclair Water Pump Lubricant.

A good general rule to follow is that over-lubrication, with only a few exceptions known to the operator, causes no harm, whereas insufficient lubrication, through no fault of the machine, is sure to be followed by costly replacement delays.

Because of varied conditions which require deviations from a definite plan of lubrication, we list only the following general rules for average operating conditions.



GENERAL FARM IMPLEMENTS

LUBRICATION RECOMMENDATIONS

FIRST, wipe off all fittings and clean out all oil holes to insure the lubricant reaching the bearings clean and free from abrasive dust and dirt.

PART	USE	APPLICATION	WHEN TO LUBRICATE
Engine power units, gaso-line, distillate, kerosene or tractor fuel	Sinclair Opaline or Pennsylvania motor oil. Consult manufacturer's service manual for correct SAE grade	Crankcase or sight feed cups	Consult manufacturer's service manual for frequency of oil change.
Bearings, all equipment, oil lubricated	Sinclair Opaline or Pennsylvania Motor Oil light medium	Hand applied with hand oil can	Daily or every ten hours on slow moving machinery. This schedule should be made more frequent as speed and service increase.
Bearings, all equipment, grease lubricated	Sinclair Opaline Chassis Lubricant or Sinclair Opaline Pressure System Grease	Pressure fittings, apply with pressure gun	Daily or every ten hours. When operating under extremely dusty conditions this schedule should be more frequent.
Bearings equipped with compression cups	Sinclair Pressure System Grease or Sinclair No. 3 Cup Grease	Hand compression cups	Turn down compression cups several turns daily. When operating under extremely dusty conditions this schedule should be more frequent.
Wheel Bearings	Sinclair Sincolube No. 3	Pressure fittings, apply with pressure gun	Lubricate bearings once a month, sparingly. Before each season, clean and repack this type bearing. Never pack this type bearing more than $\frac{1}{2}$ to $\frac{2}{3}$ full.
Gear Cases	Summer, Sinclair Opaline Gear Lubricant CX. Winter, Sinclair Opaline Gear Lubricant BX. Winter, North, Sinclair Opaline Gear Lubricant AX.	Bath lubricated from oil reservoir	Check oil level weekly. Drain, flush and refill every season.

PART	USE	APPLICATION	WHEN TO LUBRICATE
Universal Joints	Sinclair Opaline Chassis Lubricant if pressure fitting applied—or Sinclair Opaline or Pennsylvania Motor Oil SAE 30 if hand oiled	Pressure fittings applied with pressure gun—hand applied with hand oil can	Ordinarily twice daily unless otherwise specified by manufacturer's service manual.
Chains	Sinclair Opaline or Pennsylvania Motor Oil SAE 30	Hand applied from hand oil can	Apply daily or as needed. In some cases (extremely dusty) it might be found advantageous to run chains dry.
Open Gears	Sinclair Opaline Chassis Lubricant or Sinclair Opaline Pressure System Grease	Hand applied	Apply daily, or as needed. In some cases (extremely dusty) it might be found advantageous to run gears dry.
Cream Separator	Sinclair Cream Separator Oil	Oil reservoir	Check oil level weekly. Drain, flush and refill every 100 hours of operation.

MISCELLANEOUS FARM EQUIPMENT

SMALL ELECTRIC MOTORS—Sinclair Household Oil. Apply a few drops at intervals. Ordinarily, motors in refrigerating units, pumps, household appliances, etc., require oiling only three or four times a year. This depends, of course, on service.

LARGER ELECTRIC MOTORS on grinders, feed cutters, or saws—Sinclair Opaline or Pennsylvania Motor Oil S.A.E. 10. Apply sparingly.

MILKING MACHINES—Follow the outline above for motors which propel these machines—ordinarily, pump mechanism operates in a bath of oil. Use Sinclair Opaline or Pennsylvania Motor Oil S.A.E. 20 for lubricating the pump. Many manufacturers recommend that the oil supply in the pump be renewed once a month.

WINDMILL—Sinclair Opaline or Pennsylvania Motor Oil S.A.E. 30.

FEED GRINDER (Hammer Mill)—Sinclair Opaline or Pennsylvania Motor Oil S.A.E. 30.

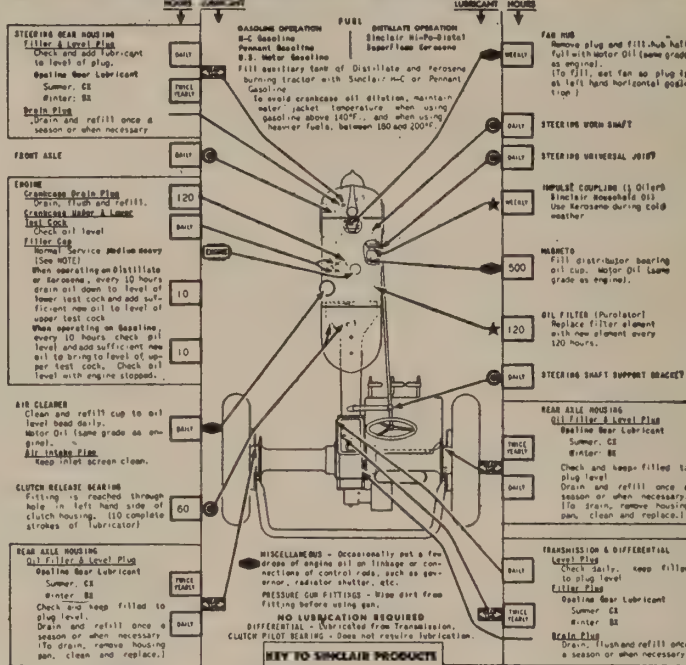
WAGONS, HAYRACKS, MANURE SPREADERS (Axle Spindles)—Sinclair Axle Grease.

Consult manufacturer's service manual for each implement if in doubt about the lubrication of any particular point.

LUBRICATION SINCLAIR CHART

International McCormick-Deering FARMALL TRACTOR B

(Reprinted-5)



KEY TO SINCLAIR PRODUCTS

- OPALINE or PENNSYLVANIA MOTOR OIL
- OPALINE or PENNSYLVANIA MOTOR OIL - Use Grade Shown
- OPALINE GEAR LUBRICANT - Use Grade Shown
- OPALINE CHASSIS LUBRICANT
- SINCLAIR No. 2
- SINCLAIR WATER PUMP LUBRICANT
- FOLLOW INSTRUCTIONS

NOTE: FOR PROLONGED OPERATION UNDER FULL LOAD OR FOR EXTREME HIGH TEMPERATURE - use next heavier grade. After long service the heavier grade may also be used on normal use consumption.
FOR BEST STARTING AT LOW TEMPERATURE - lighter grades may be used in accordance with manufacturer's recommendations. (See manufacturer's instruction book.)
CAUTION: Check all level frequently when the lighter grade is used.

CAPACITIES
ENGINE - 8 qts.
TRANSMISSION & DIFFERENTIAL - 8 qts.
REAR AXLE HOUSINGS, Each - 1 1/2 qts.
FUEL TANK - 10 qts.
GAS TANK - 10 qts.
STEERING GEAR HOUSING - 1 qt.
COOLING - 13-1/2 qts.

SPECIAL
ENGINE - After test oil level while engine is running. Oil should never be above high level nor below low level. During Very Cold Weather: Warm oil and pour into crankcase just before starting engine to insure oil this enough to pass through screen over pump section and prevent condensation of moisture in crankcase. Oil Pan: Clean screen whenever oil pan is removed.
COOLING - Clean fuel screen occasionally.
FUEL & GAS TANKS - Keep air vents open.
FUEL STRAINER - At least once a week, remove glass bowl for cleaning.
COOLING SYSTEM - Never pour cold water into radiator if engine is very hot. Idle engine briefly while filling.
WABETO - See manufacturer's instruction book for complete information.
TRANSMISSION & DIFFERENTIAL, REAR AXLE HOUSINGS and STEERING GEAR HOUSINGS - For extreme summer temperatures, use Pennsylvania Gear Oil SAE 750.

*Questions from Manufacturer's Instruction Book.

Printed in U.S.A. 7-40 (Reprint 7-42)

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*Questions from Manufacturer's Instruction Book.

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SINCLAIR LUBRICATION CHARTS SAVE TIME

They show you exactly when and where to lubricate your own make and model of tractor. The correct lubricant is also specified. Follow this chart and you will save time, wear and repair expense.

Ask your Sinclair Agent for the right chart for your tractor and your truck. Hang them up where you keep your lubrication supplies.

THEY ARE FREE



CARE OF YOUR FARM MACHINERY PAYS

Millions of dollars' worth of good farm machinery is ruined every year by lack of proper care. Something must be done to protect the cultivators, plows, mowers, reapers, combines and binders now on the farms.

Any shelter, even a temporary shed, is better than a fence corner out in the open, for machinery needs good protection from snow, rain, mud and hot sun. Rust and corrosion form quickly when raw metal is left exposed to dampness, which soon renders a machine worthless, or hard to operate.

Almost any paint will be of some value as a rust preventive, but red lead and blue lead are considered the most effective. These paints have the ability to inhibit or prevent rust. Many paints form a protective coating over metal, but are practically neutral as rust inhibitors. This means that the slightest break in this type of paint film will allow rust to commence its destructive action. On the other hand red lead or blue lead paint will continue to prevent the formation of rust even after the paint film has become porous to moisture.

Conservation of essential farm machinery by means of painting can be

done at odd times, the materials are inexpensive and easily obtained, and most of the tools and equipment are already at hand.

In preparing machinery for painting remove all loose rust and scaly paint by wire-brushing or scraping. A soft brick or sand rock dipped in water may be used to scour deep rust from metal spokes and similar surfaces. Wash off all grease and other foreign matter with kerosene. Allow to dry thoroughly and brush off all dust.

Both red lead and blue lead paints can be obtained ready mixed from paint dealers. Apply the paint to all exposed iron and steel surfaces. Brush thoroughly so that the paint will penetrate any existing pits or scratches in the metal. Move all lever linkages so that no surfaces remain unpainted. Paint wheel tires of cultivators and other equipment which will stand unused all winter. It is best to have a small brush for rods and wheel spokes as well as an old brush that can be forced into hard-to-get-at places. Allow plenty of time for drying. If some other finish color is desired, apply a finish coat of white lead paint tinted as required with colors in oil.

Grease all bearings to keep out moisture and store where it is dry.

AVERAGE COST OF USING FARM MACHINERY

	1	2	3	4	5	6	7
Machine	Cost new	Average life in years	Repairs as per cent of cost new	Annual cost		Cost per day	Days used per year
				Total	Per cent of cost new		
Tractor plow (2-16")...	\$135.00	18	3.0	\$17.22	12.8	\$1.15	15
Tractor plow (3-16")...	170.00	18	3.0	21.64	12.8	1.45	15
Disk harrow (15' single).	145.00	18	1.0	16.85	11.6	1.40	12
Spike-tooth harrow....	45.00	20	1.5	4.45	9.9	.45	10
Field cultivator.....	140.00	15	1.5	18.51	13.2	1.30	14
Tractor cultivator 2 row	110.00	16	2.0	13.37	12.1	.90	15
Tractor cultivator 4 row	240.00	16	2.0	28.75	12.0	2.90	10
Grain drill tractor hitch 10 foot.....	240.00	20	0.5	22.56	9.4	3.75	6
Corn planter 2 row.....	85.00	18	1.5	9.62	11.3	1.60	6
Mower 6 foot.....	95.00	18	3.0	12.17	12.8	1.20	10
Side delivery rake.....	125.00	18	1.0	15.85	12.7	2.65	6
Hay loader.....	140.00	18	1.0	14.94	10.7	1.85	8
Grain binder—(Tractor)	340.00	18	1.5	38.28	11.3	4.80	8
Corn binder 1 row—(Tractor).....	340.00	18	1.0	35.02	10.3	5.85	6
Combine (6 foot Auxiliary Motor)....	900.00	10	2.0	138.31	15.4	9.25	15
Corn picker 2 row.....	700.00	12	1.0	89.65	12.8	7.50	12
Ensilage cutter.....	325.00	15	2.0	39.88	12.3	5.70	7
Manure spreader.....	160.00	16	1.5	20.12	12.6	.80	25

(University of Minn. Extension Service U. S. Dept. of Agriculture)

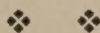
HOW TO USE COST TABLE

1. For approximate cost of using a machine for a day, use the figures in column 6.
2. If the "cost new" of your machine is different from the one given in column 1, multiply the cost new by the percentage figure in column 5. Since this gives the annual cost, divide the number of days your machine is used per year for the cost per day.

Use These Time-Tested and Proven

SINCLAIR PRODUCTS

Ask for them by name and to be safe
ACCEPT NO SUBSTITUTE.



SINCLAIR POWER FUELS

Sinclair H-C Gasoline—Sinclair Ethyl Gasoline—Sinclair Tractor Fuels—Sinclair Super-Flame Kerosene. A correct fuel for every use and each one a quality product.

SINCLAIR LIGHTING & HEATING OILS

Sinclair Super-Flame Kerosene—Highly refined fuel for lamps, ranges and brooder stoves. Sinclair Super-Flame Light—for pot type burners, space heaters and most brooder stoves. Sinclair Super-Flame Medium—Clean burning, economical furnace fuel.

SINCLAIR MOTOR OILS

Sinclair Pennsylvania Motor Oil—Made from highest quality Bradford-Allegheny Pennsylvania grade crude oil. De-waxed and de-jellied, assuring free flowing at all temperatures. A premium oil at a moderate price.

Sinclair Opaline Motor Oil—Made from selected highest quality Mid-Continent paraffin base crudes. Also de-waxed and de-jellied. A high quality oil for economical operation.

* * *

Sinclair Flushing Oil—A light oil for cleaning and flushing crankcase and gear boxes.

LUBRICANTS

Opaline Gear Lubricants AX-BX-CX—Extreme pressure lubricants recommended for all transmissions and differentials where a **Hypoid lubricant is not required.**

Opaline Extreme Duty Hypoid Lubricant—For all Hypoid Gears. Flows freely in winter, has high heat resistance in summer.

Opaline Chassis Lubricant—Tough body—made for pressure gun application.

Sincolubes—For wheel bearings and certain universal joints.

Opaline Pressure System Grease—A general purpose lubricant.

Sinclair Water Pump Lubricant.

Sinclair Cup Greases.

Sinclair Axle Grease.

SINCLAIR SPECIALTIES

Sinclair P.D.—Household insect spray. Sure death to flies, mosquitoes, bedbugs, roaches, moths, ants, and other insects. Rates "Grade AA."

Sinclair Industrial Spray—General purpose insect spray—exceptional killing power. Rates "Grade AA."

Sinclair Stock Spray—Kills and repels. Keeps flies off livestock.

Sinclair Household Oil.

Sinclair Spot Remover.

Sinclair Lighter Fluid.

Sinclair Metal Polish.

Sinclair Super Auto Polish.

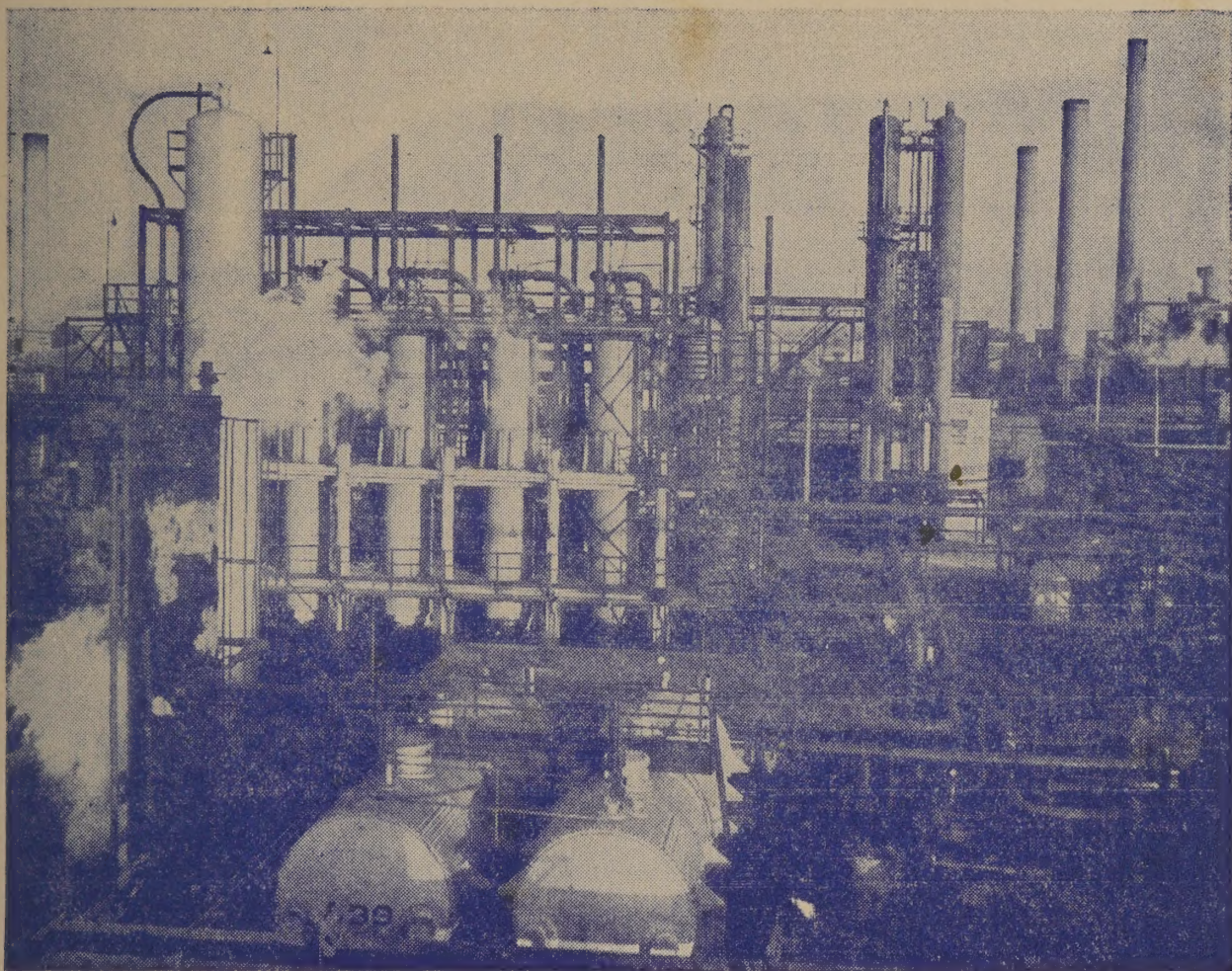
Sinclair Tar Remover.

Sinclair Soap.



Reg. U. S. Pat. Off.

Look for this sign
—the guide to a
helpful Sinclair
Agent.



Section of a huge Sinclair refinery at East Chicago, Ind.

SINCLAIR REFINERIES

Sinclair products are manufactured in ten modern Sinclair Refineries conveniently located for best service of the Sinclair marketing area which comprises the United States east of the Rockies.

In these refineries, selected crudes are expertly refined into a complete line of highest quality lubricants, fuels, and specialties, meeting petroleum requirements of industry, transportation, farm and home.

For government requirements Sinclair also produces aviation gasoline, and components of explosives and of materials entering into manufacture of synthetic rubber products.

When you buy a Sinclair brand you are buying a quality product designed to be exactly suited for best performance in the use to which it is applied.

